OCT 28 1921

SERIES 3—Vol. 4, No. 10 OCTOBER, 1921

AMERICAN JOURNAL OF OPHTHALMOLOGY

Incorporating — Established by

THE AMERICAN JOURNAL OF OPHTHALMOLOGY.....Adolph Alt 1884
THE OPHTHALMIC RECORD.....Giles C. Savage 1891
ANNALS OF OPHTHALMOLOGY.....James Pleasant Parker 1892
ANALES DE OFTALMOLOGIA.....M. Uribe-Troncoso 1898
OPHTHALMOLOGY.....Harry Vanderbilt Würdemann 1904
OPHTHALMIC YEAR BOOK AND LITERATURE.....Edward Jackson 1904-11

EDITORIAL STAFF

EDWARD JACKSON, Editor — CLARENCE LOEB, Associate Editor
M. URIBE-TRONCOSO — CASEY A. WOOD
MEYER WIENER — HARRY V. WÜRDEMANN

COLLABORATORS

Frank Allport, *Chicago;* Hugo W. Aufmwasser, *Denver;* Hans Barkan, *San Francisco;* Arthur J. Bedell, *Albany;* Edmond E. Blaauw, *Buffalo;* Melville Black, *Denver;* Nelson M. Black, *Milwaukee;* Frank E. Brawley, *Chicago;* W. E. Bruner, *Cleveland;* Burton Chance, *Philadelphia;* Wm. H. Crisp, *Denver;* W. T. Davis, *Washington, D. C.;* George S. Derby, *Boston;* Alexander Duane, *New York;* Edward C. Ellett, *Memphis;* Marcus Feingold, *New Orleans;* Wm. C. Finnoff, *Denver;* M. W. Fredrick, *San Francisco;* Harold Gifford, *Omaha;* Sanford R. Gifford, *Omaha;* Harry S. Gradle, *Chicago;* John Green, Jr., *St. Louis;* D. F. Harbridge, *Phoenix, Ariz.;* Wm. F. Hardy, *St. Louis;* Gustavus I. Hogue, *Milwaukee;* Thomas B. Holloway, *Philadelphia;* John A. McCaw, *Denver;* Charles H. May, *New York;* Wm. R. Murray, *Minneapolis;* Walter R. Parker, *Detroit;* Giles C. Savage, *Nashville;* F. Mayo Schneideman, *Philadelphia;* Theodore B. Schneideman, *Philadelphia;* George E. de Schweinitz, *Philadelphia;* T. H. Shastid, *Superior, Wis.;* Charles P. Small, *Chicago;* A. C. Snell, *Rochester, N. Y.;* George W. Swift, *Seattle;* D. L. Tillerquist, *Duluth;* Will Walter, *Chicago;* John E. Weeks, *New York;* Wm. Zentmayer, *Philadelphia;* Charles Zimmermann, *Milwaukee. Foreign:* Sir James W. Barrett, *Melbourne, Australia;* Marcel Danis, *Brussels, Belgium;* Enrique B. Demaria, *Buenos Aires, Argentina;* Robert Henry Elliot, *London, England;* J. Santos Fernandez, and F. M. Fernandez, *Havana, Cuba;* J. de J. Gonzalez, *Leon, Mexico;* H. J. Howard, *Peking, China;* M. Landolt, *Paris, France;* J. Komoto, *Tokyo, Japan;* Arthur F. MacCallan, *Cairo, Egypt;* F. P. Maynard, *Crewe, England;* E. E. Montaño, *Mexico City;* Speciale Cirincione, *Rome, Italy;* Frederick C. Tooke, *Montreal, Canada.*

Annual Subscription Ten Dollars in Advance,
Single Copies One Dollar.

Published Monthly by The Ophthalmic Publishing Company
7 West Madison Street, Chicago, Illinois.

Entered as Second Class Matter January 1st, 1918, at the Post Office, Chicago, Ill., under the act of March 3rd, 1879.

The British Journal of Ophthalmology

Ltd.

Founded 1917

Incorporating:

The Royal London Ophthalmic Hospital Reports (founded 1857)

The Ophthalmic Review (founded 1882)

The Ophthalmoscope (founded 1903)

Managing Directors

J. B. Lawford, Chairman
Leslie Paton

Directors

Sir George Berry
F. Richardson Cross
William Lang
W. G. Laws
J. Herbert Parsons
John B. Story
Sir Wm. Lister, K.C.M.G.
W. G. Sym

Editor

Sydney Stephenson

Sub-Editor

E. Erskine Henderson

With the assistance of a large Editorial Committee

Issued monthly, single copies 5 shillings. Annual subscription 2 guineas. Post free.

All subscriptions and inquiries concerning advertisements and other business matters to be sent to The Manager, British Journal of Ophthalmology, Ltd., 24 Thayer Street, London, W.

Printed and published for the British Journal of Ophthalmology, Ltd., by George Pulman and Sons, Ltd., at 24 Thayer Street, Marylebone, London, W.

PAPILLOMA OF CORNEA. (GARRAGHAN)

AMERICAN JOURNAL OF OPHTHALMOLOGY

Vol. 4 OCTOBER, 1921 No. 10

PAPILLOMA OF THE CORNEA.

EDWARD F. GARRAGHAN, A.M., M.D.
Assistant Eye Surgeon, Illinois Charitable Eye and Ear Infirmary.
CHICAGO, ILLINOIS.

In the case here reported the growth recurred showing the tendency of such tumors to become malignant. Other cases of the kind are cited. Read before the Chicago Ophthalmological Society.

The following case is reported because the papillomatous type of neoplasm involving the cornea, is exceedingly rare. This case came under my observation at the Illinois Charitable Eye and Ear Infirmary on September 24th, 1919.

HISTORY. Mr. G., age 70, married, father of nine children, wife living. Father died when patient was four years old, cause unknown. Mother died at age of 61, cause unknown. No history of malignancy in family. Stone cutter by trade. Smokes moderately. No history of injury. Patient states that about thirteen months ago he first noticed a small red spot on the eyeball at the inner canthus. This small tumor like mass gradually increased in size and spread out until at present it covers four-fifths of the cornea.

He has never had any pain and there has been no hemorrhage. Only its gradual increase in size and unsightly appearance, with a gradual narrowing of the field of vision, has caused him to seek relief. His vision at present is R. fingers 3 ft. L. 18/200.

The macroscopic appearance is that of an extensive granular tumor, pinkish in color, raspberry appearance, firmly attached to the corneoscleral margin and lying rather freely upon the eyeball. From its firm attachment at the limbus, it spreads out like a fan beneath the upper and lower lid and extends over the caruncle to the farther point of the inner canthus of the eye. The tumor is attached to a small area of the cornea on the nasal side and spreads out loosely like a flap over the cornea so that only a small section of the pupil and iris are visible on the temporal side. A probe can easily be passed beneath the tumor all around the cornea and the conjunctiva, except where several large blood vessels appear to pass from the center of the tumor beneath and thru the conjunctiva to the inner angle of the eye. (See plate IX).

The tumor bleeds readily when grasped by the forceps, in this respect resembling granulation tissue. There is no involvement of the eyelids and there are no enlarged lymphatic glands.

MICROSCOPIC EXAMINATION.—On October 9, 1919, a small section of the tumor was excised and given to the Chicago Laboratory for examination; and the following report was made, by Dr. Thomas L. Dagg: "This is a papillomatous structure and does not give sufficient evidence to warrant a diagnosis of malignant change. There is not enough of the subepithelium in the specimen to make a satisfactory examination."

After the operation, sufficient material was obtained for a thoro microscopic examination and I append here the report of the pathologist, Dr. Francis Lane, January 7, 1921.

"The specimen is comprised of epithelia and connective tissue.

EPITHELIA.—The basal cells are cylindric with deep staining, elongated nuclei and form an unbroken stratum. All stages of differentiation, from stratum germinativum to stratum corneum, are present with an over production of prickle and granular cells. The stratum corneum is reduced to one or two cell layers, evidence of fluid contact.

CONNECTIVE TISSUE.—Loose, vascularized, eosin staining tissue, with areas of small round cell accumulation, characterize true papillae formation. The growth, therefore, consists of a

proliferation of papillae with a corresponding interpapillary indipping of epidermal elements, the basal cells of which constitute an unbroken wall.

DIAGNOSIS.—Papilloma, with mild secondary inflammatory reaction."

OPERATION.—Under cocain anesthesia and with blunt pointed scissors, the tumor was dissected as close to the cornea as possible. Both the knife and curette were used in an attempt to remove all of the tumor from the cornea, but this was found to be rather deeply imbedded. There was considerable bleeding which was easily checked. The base was cauterized by the actual cautery. The cornea began to clear and the conjunctiva bulbi was entirely free of the tumor.

In about two weeks, however, there was a recurrence of the tumor over the cornea and there were two large blood vessels which were distinctly seen passing from the tumor into the conjunctiva.

The patient was again placed upon the table and the eye cocainized as before. The two large blood vessels were picked up near the limbus and ligated and the tumor cauterized, as before, by the actual cautery.

The blood vessels disappeared and the cornea then became almost perfectly free of the growth. The cautery was used on two other occasions when there was only a faint trace of the tumor remaining on the upper part of the cornea. Patient remained away for several months but recently returned, and I have been obliged twice to cauterize the recurring tumor.

HISTORICAL.— Epibulbar tumors, whether benign or malignant, originating in the cornea proper, are of rare occurrence. Most of the tumors involving the cornea have their origin in the corneoscleral margin or in the conjunctiva and spread until they involve the cornea. According to Greeff,[1] epibulbar tumors begin almost invariably in the corneoscleral margin and very seldom in the central area of the conjunctiva bulbi. Virchow, referring to the origin of these tumors, speaks of deeply pigmented connective tissue cells appearing in the corneal margin and small black flecks (melanomata) composed of such cells, which are genetic in the formation of new growths. The cause of their development is difficult and at times impossible to ascertain. They may follow slight injury or evolve from scar tissue in the margin of the cornea.

Fuchs,[2] also, refers to isolated instances of papilloma beginning primarily in the cornea.

Veasey[3] has recently reported an interesting case of epibulbar epithelioma, which probably began as a papilloma and later became malignant. This case clearly demonstrated the importance of the complete removal of the tumor and the tendency in some to become malignant.

In the author's case, there has been a marked tendency to recurrence of the tumor in spite of repeated removal and cauterization. A most interesting case, and one which is described as an exact parallel of the author's in that it had the cauliflower, raspberry appearance made of clusters of small papillae, is reported by Coover.[4] The important point to be considered is that after removal, this growth did not recur for ten years but then returned as a malignant neoplasm, a basal celled epithelioma.

J. Herbert Parsons[5] refers to a number of cases of epibulbar tumors reported by various writers, and in all these cases the origin was in the limbus.

Stieren[6] reported a case of epithelioma of papillomatous type similar to that of the author's. After removal of the tumor, the site of the growth was treated by X-ray and there has been no recurrence of the growth. Where frequent recurrence takes place, as in the case herein reported, the question of malignancy must be kept in mind. When last seen the cornea was almost free of the growth.

BIBLIOGRAPHY.

1. Greeff. Atlas of External Diseases of the Eye, 1919.
2. Fuchs. Text Book of Ophthalmology.
3. Veasey, C. American Journal of Ophthalmology, 1919, p. 876.
4. Coover. American Journal of Ophthalmology, 1920, p. 683.
5. Parsons, J. Herbert. Text Book of Pathology, v. 1, p. 262.
6. Stieren. American Journal of Ophthalmology, 1918, p. 278.

ATYPICAL CIRCINATE RETINITIS.

DR. FUMIO YANO.

NAGOYA, JAPAN.

The case here reported from the Aichi University, Japan, was one of a boy of 13 without evidence of general disease.

Retinitis circinata, which was first accurately described by Fuchs in 1893, is a rare form of retinitis, of which not a hundred cases have yet been reported. Having observed lately a case which resembles it, I will report it here.

H. K., 13, boy, farmer, came to the ocular clinic in the Aichi hospital, March 22 of this year. Born in a home of nonconsanguineous marriage, he has two brothers in good health. On examining the urine, neither albumin, cylinder casts nor sugar were found. Wassermann negative, von Pirquet's reaction negative. No conjunctivitis, keratitis, iritis or cataract are found. The light sense is reduced a little. However, metamorphopsia, night blindness and day blindness are absent. In testing the color sense, red and green are lost entirely, blue and yellow are also remarkably weak. Ring and central scotomata are present in the visual field.

Taking a radiogram by X-rays, no change is found, especially in the sella turcica. Accessory nasal cavities are normal. There is no sign of change in the organs of internal secretion by Abderhalden's method. On examining the fundus, almost identical and symmetric changes are noted in each eye; namely, the appearance of a circular or oval zone of white exudation, extending from the macular region to the nasal side of the papilla. This consists of numerous large and small brilliant white flecks or lines, particularly in the central region of the macula (fovea centralis). There is a large white plaque and absence of macular reflex ring; but no other changes except these white spots, especially no hemorrhage or edema in the retina. The retinal vessels pass over the circinate deposits. V., R = 0. L = 0.1, not improved with lens.

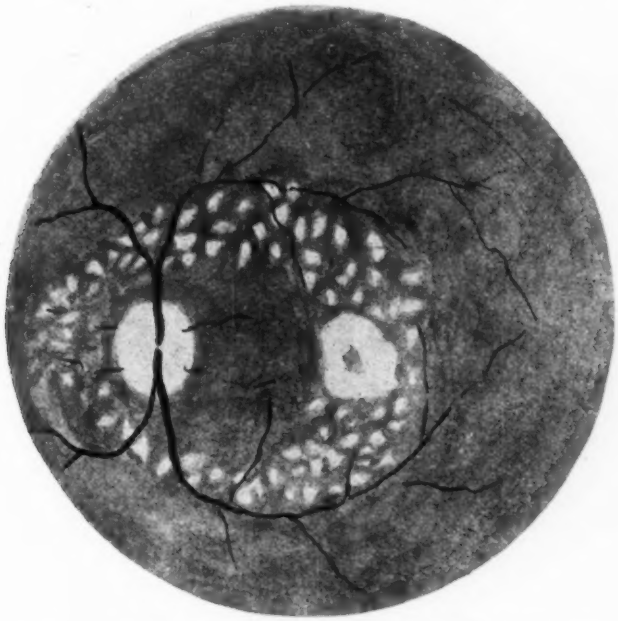


Fig. 2. Circinate retinitis. (Yano's Case.) Fundus of left eye.

Treatment: Internal use of potassium iodid, injection of mercurials, subconjunctival injection of 2% salt solution, and sodium chlorid, for 3 months, have been tried, but without result.

The above case is analogous to retinitis circinata. But circinate retinitis generally attacks old persons. Two-thirds of the cases which have as yet been described, have been in persons

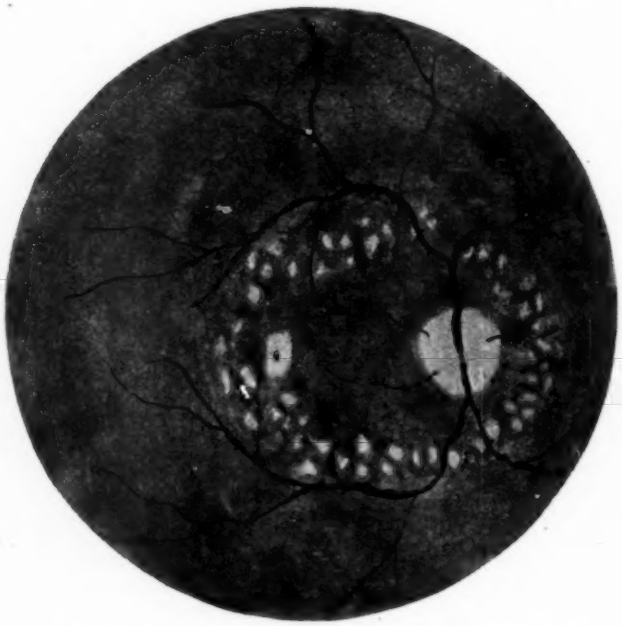


Fig. 2. Circinate retinitis. (Yano's Case.) Fundus of left eye.

of 60 to 70 years. In persons younger than 50, it is seldom seen; but one case was observed in a boy 12 years old. It has been seen more often in women than in men. Retinitis circinata appears mostly in one eye; both eyes are affected in only about a quarter of the cases. In my case it arose in both eyes and was almost symmetric.

Circinate retinitis is especially characterized by the appearance of milk white brilliant flecks on the temporal side of the papilla, around the macular region, and change in the macula itself at the same time. Heinricy and Harms have distinguished two forms, typical and atypical, from the presence or absence of changes in the macula. Leber has said, "a central scotoma is usually present in spite of the absence of change in the macular region, on examining the fundus. Altho an ophthalmoscopic change of the macula is absent, there is a superophthalmoscopic one; and it forms step by step a macular patch and seems to represent slight histologic changes.

Sato has divided it into the following kinds: 1. typical in one eye; 2. atypical in one eye; 3. typical in both eyes; 4. atypical in both eyes. My case bears resemblance to the fourth; but differs from it in the point of extending the white patch to the nasal side of the papilla. In a case of Fuchs the opaqueness in the macular region projects 3-4 D. into the vitreous humor. Nuel, Strzeminski, Doyne and Stephenson observed detachment of the retina. The blood vessels are usually normal, but sometimes varicosed a little and sclerotic or hemorrhagic. Subjective symptoms, disturbance in vision. But it is reduced so slowly that it is unknown certainly when it began.

The course of retinitis circinata is

eminently chronic and the ophthalmoscopic picture may remain unchanged for years; de Wecker observed no change for 20 years. The etiology of this disease is unknown. Axenfeld, de Wecker and Komoto ascribed it to arterial sclerosis. Some disputants argued that it depended on the histologic change after hemorrhages. But there is no relationship between the proliferation of the white flecks and hemorrhages, as Fuchs and Goldzieher have asserted. Fuchs, Doyne, Stephenson and Haab insist that it is the cholesterin crystal formation that makes the white spots. Syphilis may be an etiologic factor (Goldzieher, Lasker), that is, syphilitic disease in the blood vessels may give rise to it. But there was no syphilis in my case. Fuchs, Lasker, Goldzieher and others proved a trace of albuminuria. Sometimes Bright's disease comes to our knowledge after the retinal change but there is no sign of change in the urinary organs in my case.

BIBLIOGRAPHY.

1. Fuchs, E. Retinitis circinata. v. Graefe's Archiv. f. Ophth. Bd. XXXIX. s. 227.
2. Goldzieher. Die hutchinsonsche Veränderung des Augenhintergrundes. Archiv. f. Augenheilk. Bd. XXXIV. s. 112.
3. de Wecker. Faut-il différencier la rétinite circinée ou degenerescence blanche, de la rétinite apoplectiforme? (Zit. nach Nagel's Jahresbericht.) 1891.
4. Axenfeld. Diskussionsbemerkung. Ber. über die 25 Vers. der ophth. Ges.
5. Ammann. Ein Fall von Retinitis circinata. Archiv. f. Augenheilk. Bd. XXXV. s. 123.
6. Friedenberg, P. A Case of Retinitis Circinata. Amer. Ophth. Soc. Tr. XXXIII. p. 181. p. 181.
7. Goldzieher. Über einen Fall von Endarteritis obliterans Ret. und Retinitis punctata. Zentrlbl. f. Augenheilk. Bd. XIII. s. 364.
8. Doyne and Stephenson. Retinitis Circinata. Ophth. Soc. Tr. XXIV. p. 61.
9. Heinricy und Harms. Klin. Beiträge zur Degeneratio circinata Retinae mit besonderer. Berücksichtigung der atypischen Formen des Krankheitsbild. Arch. f. Ophth. Bd. LXXXVI s. 514.
10. Ischreyt. Ein Fall von Degeneratio circinata Retinae. Klin. Monatsbl. f. Augenheilk. Bd. LII. s. 687.
11. Steinbugler. A Case of Retinitis Circinata. Arch. of Ophth. Vol. 47, p. 513.
12. Komoto. Retinitis circinata. Nippon Gankagakkwai Zasshi. Bd. III. s. 196.
13. Sato. Supplement of Clinic Picture of Atypical Circinate Retinitis. Nippon Gankagakkwai Zasshi. Vol. XXI. s. 565.
14. Fujita. A Case of Retinitis Circinata. Chuogankaiho. Vol. 9, p. 805.

CHRONIC CHOROIDITIS WITH LIQUID VITREOUS AND BILATERAL CATARACT; OPERATION; GOOD RESULT.

FRANK ALLPORT, M.D., F.A.C.S.

CHICAGO, ILLINOIS.

The case here reported illustrates the difficulties that may beset cataract extraction. It also indicates the necessary resources for overcoming them and how careful preparedness may secure good results.

The patient was a lady probably over 60 years of age and fleshy. She has been under the care of a prominent and skillful Eastern ophthalmologist for years for recurring choroiditis, iritis, floating opacities, etc. She finally developed liquid vitreous and cataracts in both eyes. In the fall of 1920 her Eastern ophthalmologist performed a preliminary iridectomy in the left eye followed by a good recovery. He later attempted to remove the cataractous lens, but the liquid vitreous escaping in large quantities induced him to close up the eye and await developments and a more favorable opportunity for the lens removal. A violent iridocyclitis followed and, being obliged to return to her home in Chicago, she consulted me.

She was then suffering from an intense iridocyclitis and I found the lens dislocated downwards and partly in the anterior chamber. As a matter of fact it was directly in the pupil and resting upon the lower pupillary margin. I advised immediate removal of the lens and sent her to St. Luke's Hospital. I did not dare to operate upon her in the operating room for fear of a disastrous loss of vitreous humor in transporting her from the operating table to her bed. I, therefore, put an extra mattress on the bed and operated with her head to the low footboard. I was prepared for all emergencies. I used Fisher's retractors instead of a speculum, which, altho awkward to operate around, are much safer than a speculum when loss of vitreous is considered.

I made my incision with a Graefe cataract knife and the eyeball immediately began to collapse, sinking lower and lower. The lens also immediately began to drop into the vitreous chamber. I quickly grasped my delivery loop but before I could get it into the eye the lens had disappeared from view. My first sweep of the loop produced nothing but an empty loop, but my second was more fortunate. The lens was in the loop and was quickly delivered. The eye was filled with a warm, sterile, normal salt solution and the eye quickly closed with a light bandage.

The patient lay where she was operated upon and most admirably assisted me in every possible manner. She was kept quiet and free from sleeplessness by hypodermic injections of codein; no bowel movement was encouraged or occurred. The bandage was not removed for six days. The eye looked very well and was healed and of a normal degree of rotundity. Atropin was used and a mild bichlorid ointment; the bandage was reapplied and was not removed for three days. From then on the case presented no novelties. She made a good recovery.

In February, 1921, I sent her back to the hospital to make a preliminary iridectomy upon the right eye. This operation was performed with the same precaution as the other on account of the liquid vitreous; that is, she was operated in her bed, etc. The operation was successful and she made an uneventful recovery.

March 29 I sent her back to the hospital for the removal of the lens and in view of the preceding experiences, this operation was performed with extreme anxiety. I operated her on the bed as usual, used Fisher's retractors, and made my incision with Graefe's knife. The eye immediately began to slowly collapse; not rapidly like the other one but slowly. The lens also began to slowly sink. I lacerated the anterior capsule, hoping to get the lens out by gentle persuasion, but the first pressure upon the eyeball

with the spoon showed me that this method was hopeless. I, therefore, passed my wire loop underneath the lens, which by this time was almost out of sight, and pulled it into the incision. The incision, however, proved to be too small for the lens and loop together. I, therefore, pinioned the lens, which was partly delivered, with a needle and then gently pulled out the loop. This was followed by the delivery of the lens on the needle.

I filled the eye with warm, sterile, normal salt solution, squeezed into the culdesac some atropin and bichlorid ointment, and quickly closed the eye. She lay where she was operated as before for six days, being quieted by codein injections. She had no bowel movements.

When I looked at her eye at the end of six days I found a great deal of redness and reaction and the dilated pupil completely filled with a white curtain. Whether this was a detached retina or a panophthalmitis or a mass of capsule I could not tell at that time, as the dressing was slight and hurried. Whatever it was, however, it looked bad enough and very discouraging. Subsequent dressings revealed the fact that it was capsule but how it came there is a mystery, because I supposed I removed the lens in its capsule with the loop. But it must be remembered that I lacerated the anterior capsule and I presume either at the time I introduced the loop or when I transfixed the lens with the needle the lens itself shelled out of its encasement, leaving an enormous capsule behind, most menacing in its character. A prolonged and stubborn iritis followed this operation but after a while black pupillary spaces were seen here and there increasing in size as time progressed and finally the whole membrane absorbed or, at least, practically absorbed leaving a fine black pupil.

The ultimate result in this case in each eye is a full, round, white, unirritated eye on both sides with clear black pupils, and vision with glasses in each eye, 20/40, Jaeger No. 2.

This lady now is practically unhandicapped so far as her eyes are concerned. She reads, writes, attends functions, goes down town shopping, etc. I desire to say that, before operation she was not only blind, but deaf as well; deaf to such an extent that she could only carry on conversation by means of an electric acousticon.

The chief reasons for success in this case, where disaster certainly stared us in the face, were:

1st: The extremely good conduct of the patient under any and all circumstances.

2nd: Operating on the bed instead of the operating table.

3rd: The use of retractors instead of a speculum.

4th: The prompt use of a wire loop.

5th: The immediate injection of warm, sterile, normal salt solution.

6th: The extreme quietude of the patient for the first few days after the operations, produced not only by her own character but by codein hypodermics.

If any reader knows of a similar case of double choroiditis, watery vitreous, removal of cataracts, and successful results, I would like to be informed as I am anxious to gather material on the subject.

KERATITIS CAUSED BY EXCESSIVE SUGAR INGESTION.

A. C. MACLEISH, A.B., M.D.

LOS ANGELES, CALIFORNIA.

The benefit of abstinence from sugar in phlyctenular keratitis is well known. But in the case here reported the corneal parenchyma was the seat of inflammation and no phylctenules or ulcers were present.

Diseases of the same portion of any organ have more or less the same general characteristics, no matter what may be the causative agent. It is because of this, and because there are so many causative agents, that diseases progress despite treatment; when had the real cause been found, the progress would have been checked, and the disease cured. However, I think we are often too prone to search for some obscure cause, when the actual is really much more simple to discover. On the other hand, we must not neglect any investigation necessary to eliminate a reasonable doubt, when there is a question as to the cause of a condition.

Functional disturbances of the eye due to disorders of the intestinal tract are constantly being met with, and in such varied forms, that there seems to be no limit to their variety. These disturbances may be seen as active inflammations or as temporary derangements of the innervation of various portions of the organ. In some cases, the latter may assume the proportions of actual pareses of one or more of the ocular nerves.

Among the active inflammations of the eye from this source may be mentioned: conjunctivitis, blepharitis, episcleritis, scleritis, uveitis (especially anterior uveitis), keratitis, choroiditis, retinitis, and optic neuritis. These may be found singly or in combination. In this connection, it may be mentioned that there is much evidence that glaucoma, especially in its chronic form, may be directly due to the absorption of toxins from an inactive lower bowel, the action of these toxins causing an alteration in the structure of the blood vessel walls, and thus interfering with osmosis in the terminal portions.

Among the disturbances of innervation we find: scotomata (central), either actual or relative, especially enlargement of the blind spot; retinal hyperesthesia; accommodative failure; paresis of the pupillary fibres of the third nerve, which may be unilateral, causing anisocoria, or bilateral, either of which may be accompanied by ptosis; and paresis of the sixth nerve resulting in convergent strabismus.

These conditions may be caused by the absorption of small amounts of toxins over a prolonged period of time, or by the absorption of a large amount of toxins suddenly thrown into the system. The more chronic forms are caused by the former, and the acuter forms by the latter. The toxins are probably carried directly in the blood stream.

The overingestion of certain kinds of food, especially in the young, is apt to cause general systemic and also local derangements. Chief among these foods is sugar. It seems that in the young the system is particularly intolerant of an excess of sugar and resents it in many different ways.

We frequently see conjunctivitis blepharitis,. phlyctenules and facial eruptions, due to the overindulgence in sweets by children, and have found these to clear up entirely when the cause was removed, while using only the simplest of remedies locally, such as boric acid solution and heat. Recently, however, there has come to our notice a case which has been unique, and regarding which we can find no mention in the available literature. For these reasons we have thought it worthy of publication.

On March 10, 1920, Mary M., age 3, white, was brought for examination with the following history: Both eyes had been in poor condition for the year previous. There had been recurrent attacks of inflammation accompanied by pain, photophobia and lacrimation.

The eyes had been under almost constant care by different oculists but without lasting or definite benefit. The treatment had consisted of boric acid flushings, argyrol, yellow oxid of mercury ointment, atropin, and various internal medications, including specific treatment for lues. The mother said that a Wassermann test had been made which was negative. The patient was decidedly not well physically, and was very nervous.

Physical examination showed an undernourished, almost emaciated child. The complexion was pallid and unhealthy, and a blotchy, macular eruption showed on the face. The dentition was poor. The child was constantly rubbing her frontal hair, which was worn down to a short stubble. The body was thin with the ribs showing plainly; the arms and legs were very thin, but the abdomen was large, tense, and prominent. The picture presented was typically one of malnutrition. The mother stated that there was a more or less constantly alternating constipation and diarrhea, and that the child's appetite was poor and erratic.

The examination of the eyes was accomplished with considerable difficulty on account of the extreme photophobia and lacrimation, which made it almost impossible to separate the lids. However, by perseverance, both corneae were seen and both showed a diffuse, blotchy, but distinct interstitial keratitis, with some roughening of the superficial epithelium. In some places in each eye, the clouding of the cornea seemed to be deeper than in others, but in neither was the involvement very deep altho decidedly interstitial in character. The pupils and irides could not be seen. There was a moderate amount of ocular congestion, some conjunctivitis and blepharitis; but the palpebral conjunctiva was not rough. No ulcerations or phlyctenules showed.

The physical condition and the condition of the eyes pointed to a luetic infection, but there were none of the characteristic lines about the mouth, and the teeth, altho in a bad state, were not notched. Besides, the history of a negative Wassermann, and the fact that the child had been under antisyphilitic treatment without benefit, led us to suspect that there was some other cause.

On questioning the mother it was ascertained that the child was inordinately fond of sweets, and ate a large quantity of sugar daily.

Atropin ½%, one drop in each eye thrice daily, was ordered, and the patient was referred to Dr. V. E. Stork for further examination and treatment.

Dr. Stork confirmed the diagnosis of malnutrition, and reported that a Wassermann test was negative. He discovered that the child was allowed to eat sugar almost at will, and that she was accustomed to eat it even on green vegetables! Besides this, she was allowed a bag of "jelly-beans" daily! There was no glycosuria, altho it might have been expected.

A strict diet was ordered with the elimination of all sugar, and the mother instructed to continue the hot compresses and atropin.

On March 24, two weeks later, the patient was seen again and showed an almost unbelievable improvement, looking and acting like a different child. The eyes were well open, and there was almost no photophobia or lacrimation. The corneae were much clearer, the pupils were well dilated, and the blepharitis was almost gone. She did not rub her head and the rash on her face was much better. The bowel condition was also much better. In the words of the mother, "A new baby!"

Ung. Hg. Oxid. Flav. 1% was ordered to be used with light massage at night. Atropin was to be stopped. Boric acid flushing and hot compresses to be used thrice daily.

On April 20, one month later, the improvement was still more marked. There was no eruption on the face; the frontal hair had grown out well; the abdomen was soft and much less prominent, and there had been a marked increase in weight. There was no conjunctivitis, blepharitis, photophobia or lacrimation, and the corneal scars were small and fortu-

nately subcentral. Ophthalmoscopic examination showed no lesion of the fundus. Ung. flav. was ordered to be continued every third night with massage for several months. No other medication was to be used locally.

The child was not seen again; but several months after, her mother reported that she was strong and healthy, saw well, and had had no further trouble.

In March of this year (1921) we were informed that there had been a recurrence. It seems that the mother had been ill and confined to a hospital for some time, and that during this time the child had been living with a friend of the family. Not being under the watchful eye of her mother, she had been again eating too much sugar and the same condition had returned in a milder form. Under appropriate diet and the withdrawal of the sugar, the condition has cleared up again. It is reasonable to suppose that there will be subsequent recurrences if sugar is overindulged in; but whether this susceptibility will continue thruout life, or whether it will gradually die out is impossible to foretell.

The point of interest in this case is the rapidity of improvement shown after the withdrawal of the cause of the trouble, when only the simplest of remedies were used locally.

REPEATED OPERATIONS FOR GLAUCOMA. REPORT OF A CASE.

OSCAR DODD, M.D., F.A.C.S.

EVANSTON, ILLINOIS.

The case here reported illustrates the possibility of holding glaucoma in check by repeated operations. The Lagrange operation, extraction of cataract, trephining and excision of a membrane that closed the trephine opening were resorted to in succession; each with benefit and temporary restoration of vision. Read before the American Ophthalmological Society, June 1921.

The subject of my paper is one that has been much discussed; but as our results from the operation for simple glaucoma are still unsuccessful in many cases, consideration of the causes of these failures seems not out of place. The case, which I shall report, has been interesting to me in that it illustrates many of the difficulties we may encounter, and the necessity of watching the cases carefully for a long period of time.

FAMILY HISTORY. My patient's mother went blind at the age of seventy-one years from glaucoma, three years before her death. Her eyes were operated upon, but it was said to have been too late to prevent blindness. One sister had an operation for glaucoma when forty-nine years of age, which preserved the sight of one eye for about six years, but she eventually became blind. Another sister had glaucoma when fifty-two years old, and in 1896 when she came under my care, had lost the sight in one eye, and the vision in the other eye was 20/120. I did a simple iridectomy, using a broad keratome, which relieved the tension so that her vision was improved to 20/40. This vision had been retained with normal tension when I saw her last in 1913—seventeen years. I have recently heard that her vision remains the same. The fields, which had narrowed considerably before operation, improved somewhat upon the restoration of normal tension, and were retained. The blind eye, on which she refused to have an operation, became so severely painful that she returned in 1913 to have it removed.

CASE. Mrs. H., aged 59 years, consulted me first 1912. She had noticed failure of vision in her right eye the past three years and for one year had been having electric treatments, probably high frequency current, with no improvement. The vision of her left eye had also begun to fail, and as her physician said the trouble was not glaucoma and that he could promise nothing from the electric treatments, she decided to consult some one else. Her vision equalled fingers at two feet with the right eye and 6/12 in the left. The left could be improved by +0.75 Sph. to 6/7.5. There was no congestion in either eye, the media were clear; but the optic discs were deeply cupped, the right more than the left, and were pale, with narrowing of the retinal vessels. The right field was nearly normal in outline for white, but had a large crescentic scotoma below, involving the fixation point. The left field was normal in extent with an abnormally large blind spot. The tension was 60 mm. in right eye and 40 mm. in the left. After the use of the miotic, the tension five days later was 40 mm. right and 30 mm. left.

As I advised consultation before operating, she consulted Dr. Wilder, and we decided the best procedure would be to do the Lagrange operation, as our experience at that time with the Elliot operation had not been favorable enough to depend upon it. I did a Lagrange operation on both eyes under general anesthesia, removing a large sector of iris and a good sized piece of the sclera and covering the wounds well with a conjunctival flap. The conjunctival flap healed readily, but the scleral wound did not close completely for some time, the aqueous escaping under the conjunctiva. Massage was used daily. At the end of a month the tension was normal in both eyes, the wounds were closed with the conjunctival bleb

showing; and the vision was somewhat better than before operation. Five months after operation, the tension was 18 mm. in the right eye and 24 mm. in the left. The tension continued the same until nine months after operation, when I found it to be 24 mm. in the right and 40 mm. in the left. As the large iridectomy prevented a trephining above, I did it below with a two mm. trephine, removing a peripheral piece of iris.

Healing took place readily with a large bleb. Two months later the tension was 22 mm. and three months after operation the tension was only 10 mm.; her vision with correction was 6/10—, and the large bleb over the trephine opening remained. The vision continued until April, 1914, seven months after the second operation, when I found her vision reduced to 6/15— and a small opacity at the posterior part of the lens. The vitreous was clear and no changes could be seen in the fundus except the cupping of the optic disc. Two months later her vision had become reduced to 6/60, and there was diffuse opacity of the lens. There was no central scotoma. Dr. Wilder saw her again and was of the opinion that the opacity of the lens was the only cause of the poor vision, as the tension was as low as five mm. at this time. A little later, a mild form of inflammation began in the eye, and upon the use of mydriatics, some adhesions of the iris to the lens were found. Whether these were caused by the low tension or were part of a low-grade iridocyclitis producing the low tension, I could not determine. It quieted down under treatment and the tension improved slightly.

In October, 1915, the opacity of the lens having become almost complete, I operated for removal of cataract. The lens was very sticky and difficult to remove, but after needling the capsule a month later, her vision was 6/10 with a corrected glass. She returned in May, 1916, complaining of pain in the eye, and I found the tension was 28 mm. By the use of pilocarpin solution, the tension was kept down fairly well until June, 1917, when it went up to 40 mm., and I decided it was best to operate again. I did another trephining below, near the former trephine site, which gave good drainage, so that the vision returned to 6/10 with the correcting glass, and the tension was normal. This condition continued until Oct., 1918.

As she lived some distance away, I did not see her again until August, 1920, when she returned, complaining of failing vision. I found her sight reduced to 6/60, and there was a small scotoma involving the fixation point. The tension varied from 27 mm. to 33 mm., being reduced somewhat by the use of miotics. There was great thickening of the bulbar conjunctiva below, but it was solid and did not show the pitting which was present when she passed from under my observation in 1918. Examination showed that she had some diseased teeth, and these were removed, but no improvement in the eye condition followed. In January of this year, the tension had risen to 35 mm., and in February I operated again. I dissected up a large conjunctival flap below and found it to be very thick and fibrous for a long distance from the trephine opening; and directly over the trephine opening I found a dense glistening membrane grown fast to the sclera, preventing drainage. This I dissected away, also considerable of the hyperplastic tissue, giving good drainage, so the tension was once more reduced to normal (22 mm.), with vision of 6/60 with her glasses. There is a good-sized bleb present and the condition seems exactly as after the first trephining, except for the thickened conjunctiva.

The history of several cases of glaucoma in a family, during two or more generations, has been frequently reported. In 1908, Lawford[1] of London collected the histories of twenty-four families, including one reported by Dr. Howe[2]. Dr. Calhoun[3] also reported several cases in a family during three generations. In most of the families, the onset of the glaucoma is at a

younger age in each succeeding generation.

In the family of my patient, the age of the mother was seventy-one years and the daughters forty-nine, fifty-two and fifty-six years, when they were attacked. I have been unable to determine any cause for this predisposition. The two sisters, who came under my care, were seemingly in good health, with blood pressure normal or slightly below. The refraction of one was slightly myopic and the other slightly hyperopic, with no deviation from the normal in the size of the corneas.

As to response to treatment, Nettleship[4] remarks that in some families the prognosis is bad, while in other families there does not seem to be any difference from the ordinary cases. In the family whose history I have given, the only eye which retained good vision was the one in which I did a simple iridectomy at a time before sclerostomy came into use. I have recently been consulted by a physician with simple glaucoma of both eyes. He explained his reluctance to have an operation, as I advised, by giving the history of blindness in father, uncle and three brothers, in spite of their having had operations by good surgeons in different parts of the country.

My experience with the first few cases of trephining was not so favorable as to make it the operation of choice. I could find no reason, in the case I am reporting, why the Lagrange operation, done as nearly alike as possible in the two eyes, should have been so successful in the poorer eye which has retained normal tension ever since, and have proven so unsatisfactory in the other eye, necessitating another operation at the end of nine months. I used massage to facilitate drainage during the period of healing, and a filtering scar was present in both eyes for some time, when the bleb disappeared, as is usually the case.

When a second operation became necessary the only choice left, on account of the broad iridectomy, was to make it below or to one side of the coloboma, where the bleb would be exposed when the eye was open.

I decided to make it below, although I think the danger of secondary infection is much greater at this point than under the upper lid. The constant irritation of the lower lid undoubtedly produced the great thickening of the subconjunctival tissue, and in this way probably caused a blocking at the opening, with return of tension. This hypertrophy of the subconjunctival tissue, producing closure of the scleral opening, is reported by a number of operators with no explanation given for its occurrence. In a large number of trephinings which I have done with the flap under the upper lid, I have never had this occur, and considered it due to the location. In the cases reported, however, this does not explain the condition. It is worthy of note that in animal experimentation, the hyperplasia of tissue causes a closure of the opening in nearly every case.

Why there should have been hypotony after the second operation, following a period of normal tension, I could not determine. It is possible that there was good drainage with a diminished secretion of fluid in the eye, as a result of the previous tension. That there was a close relation of the hypotony to the development of the cataract, I have no doubt. With the lack of normal tone in the eye, it seems reasonable to suppose that the lens, which depends on absorption of the fluid surrounding it for its nutrition, should not be sufficiently nourished.

E. Treachor Collins[5], in his paper on Sequellae of Hypotony, stated that he had watched cases of minus tension following sclerocorneal trephining for years in which apparently there had been no ill effects. Elliot, in his discussion of the paper, said that the prevalent idea that opacity of the lens would follow hypotony was due to the experience with cases due to decreased ciliary secretion. That hypotony, due to operation, had never been followed by this result in his experience, and he had followed cases as long as six years in which there had been no changes in the lens or diminution of the vision.

Knapp[6] does not consider the continued low tension as harmless. He reported six eyes in four patients with tension varying from two to ten mm. at a period of four to five years after trephining. One was lost with phthisis bulbi and in two the lenses became opaque.

Considering the marked changes to be found in the other structures of the eye, it would be strange if the lens escaped.

It is interesting to note that in my last operation on this patient, the blocking of the trephine opening was caused by a dense membrane covering the opening. Verhoeff,[7] in his histologic examination of an eye in which a successful sclerostomy had been performed mentioned the fine reticulated tissue, which had grown down into the scleral opening; but in my case, as far as macroscopic examination could determine, there was none present. The removal of the membrane has restored the drainage, the permanency of which it is too soon to determine. I removed part of the hypertrophied subconjunctival tissue, and should have removed more of it except for the fear of secondary infection. I can find no report of cases in which this has been done, but I could see no reason for making a new opening when a former one was patent and sufficient to give the necessary drainage.

A recent report of her condition from Dr. Edgar of Dixon, Ill., under whose observation she has been since the operation, says the tension of the eye was 13 mm. in April, and has remained about the same with a rather prominent bleb always present, and there has been no change in vision.

1. Lawford, J. B. R. L. O. H. Rep., 1908.
2. Howe, Lucien. Archiv. of Ophth., 1887.
3. Calhoun, F. Phinizy. Jour. A. M. A., 1914.
4. Nettleship, Edw. Trans. Ophth. Soc. U. K., 1909, vol. 29.
5. Collins, E. Treachor. Trans. Ophth. Soc. U. K., 1917.
6. Knapp, Arnold. Amer. Jour. of Ophth., vol. III, p. 88.
7. Verhoeff, F. H. Archiv. of Ophth., 1915, p. 129.

THREE CASES OF WORD BLINDNESS.

ELLICE M. ALGER, M.D., F.A.C.S.

NEW YORK CITY.

Of these cases one was of acquired disability associated with advancing paralysis and some mind blindness. The other two were of the congenital form recognized in boys ten years of age. Read before the American Ophthalmological Society, June, 1921.

The subject of this paper may seem out of place in an ophthalmologic program, since it belongs in the indefinite borderland between ophthalmology, neuology and psychology. The patients I have seen, however, all consulted an ophthalmologist first, either directly or at the instance of their physicians, because the trouble was thought to be an ocular and not a cerebral defect. I do not suppose the condition can be such a rare one, but it is probably very frequently overlooked or masked by more obtrusive symptoms. Indeed both my congenital cases had passed thru the hands of several ophthalmologists without recognition. This is the more important because the whole future of such children depends on early recognition.

Acquired word blindness was first noticed by Kussmaul,[1] some fifty years ago and the congenital type a few years later. Indeed, the latter could hardly have been suspected or diagnosed without a previous knowledge of the former, and for that reason I have included them both in this paper.

The term "word blindness" has been severely criticised as unscientific, and various substitutes offered;[2-3] but it now seems so firmly engrafted in our terminology that criticism is probably superfluous. It implies that a person, who can see perfectly, recognize objects and numbers, write correctly and perform calculations, has suddenly become unable to recognize letters or words with which he was previously perfectly familiar, perhaps not even his own name. And yet their meaning is grasped instantly when they are spelled or spoken aloud.

Thomas L., a Greek, 59 years of age, living in a small town, while apparently in robust health, had an attack of dizziness on going to bed one evening and the next morning was found to have a slight paralysis of the right side, some diplopia and some defect of vision, which prevented his reading print of no matter what size. The paralysis was apparently an evanescent one, for he was confined to the house only a few days. The nature of the seizure was at once suspected, a strongly positive Wassermann found and under very active treatment, his physical condition improved rapidly. He seemed about as well as usual except that for a time he was unable to find his way about the small town in which he lived because he did not recognize familiar buildings and landmarks; and as he was still absolutely unable to read his paper, he was, a few weeks later in May, 1919, referred to me for an examination of his eyes. By that time he walked perfectly well, his diplopia had disappeared, he had begun to find his way about town again and that morning was able to recognize the railway stations on his way to New York which he had previously been unable to do.

So far as his eyes were concerned, the media were clear, the fundi normal, the pupils normal except that the right was slightly larger and slower in its light reaction than the left. The red glass test showed some weakness of the left external rectus but there was no longer any spontaneous diplopia. He apparently had very much reduced central vision because he could read no letters on the test chart at all, tho he was said to be familiar with English. To my great surprise, when I turned his attention to a chart with numbers, his vision was normal in each eye and with presbyopic correction he read the numerical equivalent of number one Jäeger, without hesitation.

Of the headlines of a Greek paper, however, he could not read a word. Tho he could not recognize words or letters either in English or Greek,

he was able to write them readily, but when shown to him a few moments later they meant nothing to him, not even his own name. I noticed that if he watched me write a word he could recognize it if it was a short one, tho only for an instant, and then discovered that if allowed to trace a letter or a short word with pencil or match he could generally recognize it. He recognized objects and their uses readily but occasionally hesitated over their names, to his great vexation. Numbers he recognized normally and was able to perform correctly various calculations.

He was found to have a right homonymous hemianopsia, quite sharply marked and not involving the fixation point in either eye. This hemianopsia was a curious one because, while it seemed complete under the usual tests, he claimed at times to see hand movements if quickly made in the blind field and did not fall over things or collide with people as much as one would expect.

I saw him again a month later when his condition had improved materially. He could now recognize Greek letters and words fairly well and was able to read a little Greek text, which he could not do before, and could recognize his own name. The hemianopsia was unchanged.

In spite of several efforts I have not been able to secure another examination. His family physician tells me that he got perfectly well, of which I am very skeptical. It is of course possible that most of his symptoms were "distant" ones.

Every normal individual has the power of storing up and reproducing, more or less at will, the impressions received thru the various senses. This constitutes memory.

For instance, an eye may react to light and show a perfectly clear retinal image; but if the connection between it and the primary visual areas about the calcarine fissures are destroyed or blocked, the individual is not conscious that he sees. And unless he can compare what he sees at one instant with previous impressions, every visual impression would be absolutely new and valueless from the point of view of recognition or as a basis for judgment. These visual memories seem to be stored in the cortex about the angular gyrus; in right handed people, on the left side. Each one of the senses seems to have a similar memory centre[4] in the same general neighborhood and these various centres seem to be connected in very intimate fashion. What little we know about the subject, comes from the careful study and comparison of clinical cases and occasional autopsy; and our information is extremely indefinite. In many cases, as in the one reported the visual memory area is blocked but not destroyed and the patient is able to get at it in some round about way thru its connection with the auditory or tactile memories so that when he hears the object named or can touch or taste or smell it, he at once remembers how it looked; for instance, he can write, tho he cannot afterwards read what he has written. But if the area be destroyed or completely isolated, visual memories cannot be revived thru the other senses; and the so called "mind blindness"[5] results, in which the patient has not the faintest idea what he is seeing. He has no visual memory to project and therefore cannot write.

Apparently this visual memory area is still further divided or specialized. Less complete destruction or blocking has resulted in recorded cases of word blindness without letter blindness,[6] of letter without word blindness,[7] of musical note blindness,[8] of blindness for one language like French while ability to read another with similar characters like English was preserved, of inability to read English while Greek or Arabic were retained,[9] and of psychic color blindness[10]. In almost all these cases a right hemianopsia was present. This of itself would not cause any interference with the visual memory so long as the connection between the memory centre and the opposite hemisphere was preserved. If this was interrupted some form of memory blindness would occur. This is the usual type, the most common lesion being some vas-

cular changes in the sylvian artery or its branches, which supplies the whole region of the angular gyrus and the communicating paths leading to it. It is quite likely that in a good many hemiopic patients, word blindness is overlooked, the inability to read being interpreted as the result of very poor central vision. There is no apparent reason why word or letter blindness should be any more common than number, note, or object blindness, tho they would be less often detected by routine tests.

The prognosis must of necessity depend on the amount of actual destruction as compared to the amount of temporary pressure, edema or anemia; but hemianopsia notoriously is not likely to disappear. Younger and more intelligent patients can learn to read by developing roundabout methods of communication thru other centres, such as by actually or mentally tracing a letter or word and saying it aloud. Hinshelwood records one case where a patient by enormous effort reacquired the ability to read haltingly, the autopsy showing a very unusual development of the corresponding region in the other hemisphere[9]. This would naturally be easier in the young and almost impossible in the old.

Congenital word blindness implies a congenital defect which prevents an otherwise normal child from learning to read, either entirely or after very great difficulty. It could hardly have been identified clinically without the suggestion derived from knowledge of acquired cases.

At first considered a very rare condition, the pendulum has now swung so far in the other direction that the term is twisted to include all sorts of cases, whether due to organic defect or poor teaching or general stupidity. The following cases perhaps will serve to outline the clinical picture.

Master B. ten years of age, a child of normal, healthy, intellectual parents married late in life, was born when his mother was thirty-five years of age, after a labor said to have lasted five days and terminated by forceps. He was always delicate and sickly, but survived a double pneumonia. As a small child, he complained of seeing things upside down, was sent to school at the age of six, was able to learn the letters of the alphabet with the greatest difficulty and was never able to distinguish "M" from "W". He had never been able to read or spell, stumbling over the shortest words. He keenly enjoyed having stories read to him but would not make the slightest effort to read for himself. He could not write words readily but recognized them at once when read to him or spelled aloud, but he conversed unusually well for his age and was said to be exceedingly clever in mathematics. His poor progress in school had been a great trial to his parents. He had been taken to several ophthalmologists in the hope that the trouble was due to some defect in the eyes. He had worn glasses from time to time.

Both parents had finally come to regard him as a mental defective; and the father, who had looked forward to seeing his own classical career repeated in his son, could hardly bear the sight of him, while the child had the attitude of a whipped dog and had entirely lost his intellectual morale. Careful examination of his eyes showed them to be absolutely normal except for a low refractive error. There was no hemianopsia.

The probable nature of the trouble was explained to the parents and particularly to the boy himself, with the suggestion that with individual teaching and great patience he would eventually learn to read fairly but probably never normally and that he should be educated along the lines of strength rather than of weakness.

I have seen this boy occasionally during ten years. He now reads fairly well but laboriously and not for pleasure. He has never been able to do much with languages but has been an exceptionally good mathematician and is acquitting himself very creditably, being nearly ready to enter the Boston School of Technology. Even today he has to spell long and unfamiliar words aloud to assist himself in reading.

J. G., age ten, was brought to me because he could not learn to read and was very backward in school, in the hope that there might be some ocular condition which would account for the trouble. His parents were unusually intelligent, educated people and his younger brothers had completely outstripped him so that he is considered by the other children, his parents and himself as more or less of a fool. He hated to go to school and was too discouraged to try very hard at anything.

He was a bright enough boy, when talked to about things that interested him. He could not read common words like dog and cat well, but recognized them at once when spoken to him or when he was made to spell them aloud for himself. He took a keen joy in the funny supplement and after looking at the picture could stumble thru the captions which he could not previously read; did mental arithmetic better than normal. Naturally left handed, he had been made to use his right, but was not definitely right or left handed, writing his name with either hand, but if he wrote right handed first, did not afterward use his left so freely unless allowed to write backward, which he did much better than forward with this hand.

In this case, too, the eyes were normal in every way except for a low refractive error, and there was no hemianopsia.

Explanation of the difficulty made an entire change in the attitude of parents and brothers toward him and did even more to restore his own morale, while individual teaching along better psychologic lines resulted in rather remarkable scholastic progress.

There are very wide variations, within psychologic limits, of the ability of children to store up visual memories. There are occasional instances which are almost beyond belief. Binet instances a man who could take in at a glance whole columns of figures and afterward reproduce them at will in his own mind just as tho he were looking at a photograph.[11] Gould has reported a patient who could take in a large part of a page at a glance.[12] Theodore Roosevelt was supposed to have had this faculty to an unusual degree. On the other hand there are whole groups of children whose perceptions are distinctly auditory rather than visual; and it is only when word perception is far below the ordinary physiologic limits that we are justified in classing a child with the congenital word blind. It is said to occur much more often in boys than girls.

Most of us learned our letters individually from blocks or large type, hearing the letters called and calling them ourselves, and so associating the auditory and visual centres. Short words followed, being spelled aloud so that any child with a visual memory, competent to embrace the letters of the alphabet, could with patience learn to read a passable amount thru the auditory association, even tho the visual memory centre was not very good. With practice we learned to recognize words as entities and not as collections of phonetic letters and in this way alone could we read as the educated man must read. But the modern educational method tends to skip the first two stages, the child no longer learns letters and instead of his visual memory centre having to become familiar with a half a hundred forms, it is compelled to assimilate the infinite number of combinations of letters first in syllabes, finally in whole words, and all this with very little aid from the auditory memory centre. Under the modern system, it would seem as tho the number of cases of congenital word blindness ought to be much greater and the teaching them a modicum of reading much more difficult.

From clinical cases of acquired word blindness, it would seem that letters, numbers, musical notes, words etc., occupy perhaps closely contiguous but nevertheless distinct areas in the visual memory centre which may be destroyed, but are more often perhaps simply isolated by various subcortical lesions.

In the congenital cases, however, it is much more likely that the defects are cortical and due to lack of development rather than to destructive lesions. For

this reason, they are not so likely to be extreme defects (and being limited to the neighborhood of the angular gyri, are not accompanied by hemianopsia as in the acquired type). We might expect to find the same variety of clinical types from what has been called congenital "dyslexia,"[13] a very rapid fatigue of the centre up to absolute letter blindness.

In youth, too, if one side of the brain is crippled, there is some chance that the other side may take up its normal function successfully, a thing which can hardly be hoped for in the elderly, altho attempts at it have been indicated.

The fact of right or left handedness is interesting too. Feeblemindedness is said to be much more frequent in left than right handed children. The right handed always have the visual memory center, on the left angular gyrus and vice versa. Indeed some claim that the manual center determines its localization. It is quite conceivable that the attempts to change a naturally left handed boy into a right might have prevented the specialization of one definite visual center as it did the writing one.[14]

Methods of treatment. It is important to explain matters carefully to paents and perhaps to the child in order to remove the stigma of inferiority which affects adversely the whole morale of childhood. Individual instruction and an understanding teacher are indispensible. It would probably be a mistake to teach the child to substitute auditory and tactile for visual memories entirely, but they can certainly be used to facilitate the storing of those memories. The use of block letters, of spelling aloud and reading aloud, will be of great assistance. The prognosis must be a rather uncertain one, but most of these children in time learn to read more or less. There is a possibility in childhood that the corresponding area on the right side of the brain might take up the function of the defective left. Hinshelwood records an adult case where autopsy revealed an attempt at this as shown by an unusual development of the area, and of course this would be done much more readily in childhood. The choice of occupation or profession, in which success should depend as little as possible on visual memories, would also be most important.

BIBLIOGRAPHY.

1. Kussmaul. Ziemssens Cyclop. Vol. 14, 1877.
2. Claiborne. Symbol. Amblyopia. Amer. Jour. Obstet. v. 61, p. 998.
3. Jackson. Developmental Alexia. Am. Jour. Med. Sc., May, 1906.
4. Head. Brain, Vol. 43, part. 4.
5. Wilbrand. Die Seelenblindheit. Wiesbaden, 1887.
6. Badal. Archiv. Ophthal. Mch. and Apr., 1888.
7. Hinshelwood. Letter, Word and Mind Blindness. Lancet. Feb. 12, 1898-1900, page 68.
8. Edgren. Deutsch. Zeitschr. f. Nervenheilk, Dec., 1894.
9. Hinshelwood. Congenital Word Blindness, 1917, page 16, etc.
10. Wilbrand. Ophth. Beitrag zur diagnostic Gehirnkranheit. Weisbaden, 1884.
11 Binet. Psychology of Grand Calculations, 1894.
12. Gould. Jour. A. M. A. July 6, 1912.
13. Berlin. Ein Besondere Art der Wort Blindheit, Wiesbaden, 1887.
14. Claiborne. Stuttering and Manual Dexterity. N. Y. Med. Jour. Mch. 31, 1917.

OCULAR CHANGES IN INFANTILE SCURVY.

EUGENE M. BLAKE, M.D.

NEW HAVEN, CONN.

The general occurrence and characteristics of infantile scurvy are here discussed. A case is reported illustrating the difficulty of its diagnosis and also the very rapid improvement with proper diet. Read before the American Ophthalmological Society, June, 1921.

The infrequency of scorbutus in infants and the scanty literature concerning the ocular changes in this condition, make the recording of an additional case seem worth while. Since the ophthalmologist may be consulted before the diagnosis of scurvy has been made, it is well for us to be cognizant of the changes which that disease may bring about in the ocular structures.

Infantile scurvy may be defined as a constitutional disease due to some prolonged error in diet. It is frequently referred to as Barlow's Disease because of the clear demonstration of its clinical and pathologic features described by Sir Thomas Barlow in 1883. The disease is characterized by spongy, bleeding gums, swellings and ecchymoses about joints, especially the knee and ankle, hemorrhages from the nose and other mucous membranes, extreme hyperesthesia and often pseudoparalysis of the lower extremities. There is usually a marked general cachexia and anemia.

Age is an important factor, four-fifths of the cases occurring between the sixth and fifteenth months, and one-half between the seventh and tenth months. Previous disease does not appear to be a factor of importance, altho derangements of the digestive tract may predispose in certain cases. The only etiologic element known to be constant in the production of scurvy, is diet, no specific scorbutic poison being present, but rather an absence of some antiscorbutic element from the food. The cases occur most commonly in infants fed on proprietary foods, on condensed milk or milk which has been too thoroly boiled. Generally several months elapse before such improper feeding produces the signs of scurvy.

Usually the first symptom observed is tenderness of the legs when handling the affected infant. Associated with this hyperesthesia is fretfulness, pallor and failing nutrition. The soreness of the legs increases and swellings appear about the joints. Coincidently with this, the gums become purplish and swollen and bleed easily, and there is loss of color, weight and appetite. Unless proper treatment is instituted, these symptoms increase and paralysis of the extremities may be simulated, due chiefly to the pain incident to movement of the part. Traumatism may be suspected because of the appearance of ecchymoses in the skin.

The pathologic lesions are most marked in the bones, bloodvessels and the blood, and the most striking feature is subperiosteal hemorrhage, which may be very extensive. Extravasations may be found between the muscles and beneath the pleura, peritoneum and pericardium. A rarefying osteitis may be present, and separation of the epiphyses from the shaft of some of the long bones is generally found in fatal cases.

Probably the most frequent and certainly the most striking ocular complication of infantile scurvy is exophthalmos due to hemorrhage into the orbit. In 1898 the American Pediatric Society conducted a collective investigation of infantile scurvy in North America. In all 379 cases were found, in 49 of which exophthalmos was recorded. This agrees fairly well with the statement of Holt that 10 per cent of the cases present exophthalmos. In 1912 L. R. DuBuys of Tulane University, added 13 cases, including one seen by himself. Huebner reported four cases of exophthalmos among 65 cases of infantile scurvy (6.15%) and Nicolai 13.17%. A rather careful search of the literature since 1912 revealed one other case of exophthalmos, reported by Brandes in La Clinique in May, 1912.

Exophthalmos occurs suddenly and may be so slight that it is referred to as a swelling of the eye, or so marked that the eye is lost from exposure and sepsis, as occurred in the case of Mr. Sutherland of London. It may be an early sign but usually appears as a late manifestation. The exophthalmos is often seen for the first time after a fit of crying and may occur in one or both eyes, either together or separately. There may be recovery followed by recurrence, or the eye may remain stationary and at intervals the symptoms increase. The exophthalmos is due to one of two causes, either a hemorrhage into the areolar tissue of the orbit or hemorrhage beneath the periosteum of one of the orbital bones. The latter corresponds to the condition found in other parts of the body and was demnostrated at autopsy in the cases of Meyer and Snow. In Snow's case the hemorrhage was found between the periorbita and the bone and filled almost the entire orbital cavity. The orbital plate of the frontal bone appears to be the most common site of the hemorrhage. When the latter extends in front of the fascia orbitalis, there is generally associated an ecchymosis and suggillation of the upper lid.

Infantile scurvy affects other portions of the ocular structures far less often than the orbit. Subconjunctival hemorrhage has been noted at times; and Hirschberg relates a case in which a large flame shaped hemorrhage occurred in the retina, appearing when the orbital hemorrhage was subsiding. Blood in the anterior chamber is reported in one case by Otto Kaltz; and Sidney Stephenson reports a case of ecchyomsis in the lower lid, unassociated with orbital hemorrhage.

The practical significance of the orbital hemorrhage and other ocular changes recorded, lies in the fact that they may be early symptoms and therefore be seen first by the ophthalmologist. A suddenly appearing exophthalmos in an infant is probably due to scurvy, since neoplasms and cysts never grow so rapidly and syphilis can be excluded by other signs and tests. Traumatism is often suspected because of the frequently associated hemorrhage into the lids and should lead to an examination for the signs of scurvy. Retinal hemorrhage may be more common than reported thru failure to use the ophthalmoscope. Subconjunctival hemorrhage in an infant not suffering from pertussis would be a suspicious sign of scurvy.

CASE. On Oct. 25, 1920, I was requested by the attending physician to examine the eyes of baby S., aged one year. The history was that he had been well until one month previously, when he developed "rheumatism" in the legs. The child was pale and very irritable, especially when handled There was no fever and no increase of pulse rate, and the urine was reported to be normal. The right eyeball began to protrude one week before the examination, the swelling subsiding within a few days, only to recur. After a second subsidence, it recurred a second time.

At the time of the ocular examination, the right eye was markedly exophthalmic but with motility unimpaired, except as due to the proptosis. There were no hemorrhages into the lids or conjunctiva and no chemosis. There were no pathologic changes in the retina; the eyeball was not tender and no mass could be felt.

The diagnosis of infantile scurvy did not occur to me; but the suddenly occurring exophthalmos, without inflammatory signs or preceding acute illness, could only be explained as due to an orbital hemorrhage, or edema of the orbital tissues and such was the explanation offered to the attending physician. A few days later the case was seen by an able pediatrician, who telephoned me that the child had all the symptoms of scurvy and that he thought the exophthalmos was due to an orbital hemorrhage.

The previous history of the case was typical of that found in infantile scurvy. The child was born at term

but had never been nursed, having been fed from the beginning on malted milk, which diet was continued to the age of eleven months. Feedings were then changed to Mellin's Food and pasteurized milk, both, of course, devitalized foods. At the age of ten months the legs became painful and swollen, the swelling being marked and extending from the knees to the ankles. No hemorrhoges appeared in the skin and at no time were the gums swollen. A pseudoparalysis of the legs was present and the diagnosis made was rheumatism.

When the correct diagnosis was established, the diet was changed to raw cow's milk and orange juice, 1 dram of the latter three times a day. Within four days the exophthalmos had disappeared, the swelling of the legs had gone and the child appeared greatly improved in every way. There have been no further relapses and the child today is robust and healthy.

NOTES, CASES AND INSTRUMENTS

FOREIGN BODY SPUD ILLUMINATOR.*

W. Holbrook Lowell, M.D.

BOSTON, MASS.

Numerous methods of illuminating the cornea have been devised to facilitate the removal of foreign bodies. A blepharostat is seldom used and with the left hand holding the lids apart, it is awkward to hold a lens or light at the same time. The small light fastened to the handle of an eye spud is good, but the wires from the battery must be maneuvered and the bulb arm adjusted.

For some years the writer has carried a fountain pen light and found it most convenient to carry and handy in clinic and office examinations. The possibility of fastening an eye spud to this fountain pen light, so that the point of the spud would be in the rays of the light and one with it, has been in the writer's mind for some time. The culmination of this idea is shown in the accompanying cut.

It consists of a fountain pen light with spring contact switch; to which is attached a smaller parallel barrel, equal in length, with a sliding member in this superimposed barrel. When the whole attachment is rotated on the fountain pen barrel, a tempered spring slides over the contact switch spring, thus giving a constant steady light. The spud is fastened in this sliding member. When pushed forward with the light on, as in Fig. 1, the spud point and cornea are well illuminated and the light is where you want it when you want it, and the left hand is free to control the lids. The spud is protected when not in use by sliding it back into the barrel, as in Fig. 2.

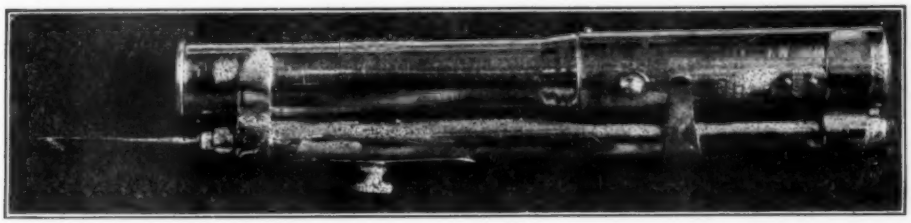


Fig. 1. Lowell's illuminator for foreign body spud or similar instrument, ready for use.

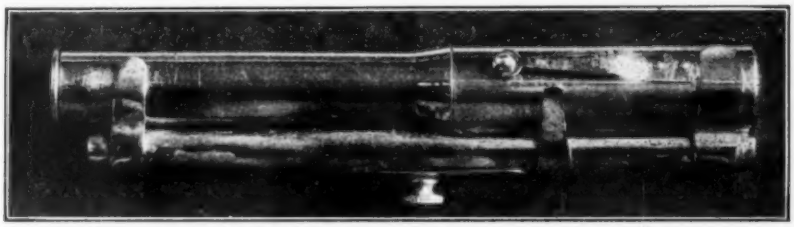


Fig. 2. Lowell's illuminator with spud slid bauk into the barrel to protect it in carrying.

The writer is indebted to Mr. Sach, of F. H. Thomas and Company, Boston, for his interest and zeal in carrying out these ideas.

*Shown at the meeting of the American Ophthalmological Society, June, 1921.

A NEW TEST CARD.

J. MONROE THORINGTON, M.D.

PHILADELPHIA, PA.

The experienced ophthalmologist knows only too well the uncertainty or confusion produced in the mind of a patient when English block letters are used, and for this reason Gothic letters are employed. The letters on each line have been well spaced. The lack of careful spacing on many test cards, especially with block letters, is a serious handicap, as the letters will appear to blend or run together if placed without sufficient space.

With the exception of the two letters at the top, the remaining rows of letters are numbered on the left, 1 to 9, from above downward. The numerals are colored red to assist in detecting the most common variety of color blindness, and at the same time by the use of these figures, the patient is enabled to indicate promptly the number of the lowest row of letters which he can see, without being obliged to go back and count the lines, as he does if other test cards are used.

There is a very gradual diminution in the size of the letters on the various lines from above downward; and all the letters are constructed on the angle of four minutes, as suggested by Wallace. This diminution in size of the letters permits the insertion of intervening letters, also in column formation, below the $\frac{\text{VI}}{\text{X}}$ line. Care has been taken that a proper proportion of round, diagonal and square letters is maintained in each line and column.

As the letter B is so often confused with and called the figure 8 or letter S, it has been eliminated; and vice versa, the letter S has likewise been omitted.

The letters R and K, being wide open at the bottom and having a comparatively small opening at the top, have a marked resemblance to the letter A and they, too, have not been used.

Ophthalmic license has been taken with the letter A, which is seen on lines 2 and 4, the horizontal bar of which has been lowered one-half a minute to increase the size of the triangular space just above the bar.

A has not been placed on the lines of small letters below the fourth line, as a patient occasionally states that he cannot see the triangular opening and only recognizes A because it is the only letter in the alphabet with a pointed top. This A, as the patient sees it, resembles an inverted V.

N, V, K, and Z, spoken of as diagonal letters, as they each have a diagonal line, are quite essential on every test card in correcting astigmia at an off axis, i.e. an axis other than 90 or 180. E, F, H, L, and T, spoken of as square letters, are in common use for astigmic errors at the more common astigmic meridians, 90 and 180. G and also Q, with their individuality indicated by their straight and curled lines, respectively, are not good round letters like C, D, O, and U, and have been purposely omitted.

Patients do not readily commit this test card to memory, as they do the Snellen cards. Using this card two or three days in succession with the same patient, it is easy to vary the daily examinations by asking the patient on the second visit to read the letters backward from right to left and on the third day to spell the letters downward in column formation.

The visual acuity in feet and metric distance is indicated by Roman letters and Arabic characters at the right of each line.

This card, which is illustrated by the accompanying cut, is being made by Messrs. Wall & Ochs, 1716 Chestnut street, Philadelphia. It may be had with red numerals and yellow letters on black, with red numerals and white letters on black, and with red numerals and black letters on white.

T O
1 D V E
2 L Z T U A
3 F D H N C
4 Z A O F N
5 O L N C E
6 H V F O Z E X N D
7 V E C T D N H O L
8 C H N E L O T F V
9 N O V L E F D T H
METRIC TEST LETTERS
1716

CASE REPORTS SUBMITTED TO THE AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS.

It is often asked what kind of case reports should be submitted to the American Board of Ophthalmic Examinations. The following have been selected as examples of such reports acceptable to the Board, and are here published as containing matter of general professional interest. What would be a good case report for a medical journal will meet the requirements. But it is proper for this purpose to supply reports that go into details illustrating methods of examination, the technic of operating and the grounds upon which conclusions are based. Ordinary cases such as errors of refraction, muscle balance, conjunctivitis, etc., should be included. These are not published as the best reports that are being submitted to the Board but as good examples of those that have been considered satisfactory.

TUBERCULAR IRITIS.

LIZZIE M. CARVILL.

BOSTON, MASS.

Female S. 41 years. Stenographer. Oct. 3, 1910. Diagnosis—Tubercular iritis.

Family history good. Father died at 70. Mother alive (84). Two sisters (43-45) living and well. Their families living and well. None of the near relatives have had tuberculosis in any form. None of the family have had trouble with the eyes other than those corrected by wearing glasses.

Previous history good. Only illness children's diseases. Seven years ago had an attack of iritis O. S. which lasted several months but cleared up leaving eye apparently as good as ever. Report from physician negative except patient very nervous and underweight. Weight 114 lbs.

History of present attack. 4 months ago O. S. became inflammed and has been treated during that time by an oculist, using 1% solution of homatropin. Condition of eye slowly growing worse. No pain.

O. S. Pupil slightly dilated, irregular and does not react to light. Slight conjunctival and ciliary injection. Numerous deposits on Descemet's membrane, some pin point and more numerous near the angle of the anterior chamber in the lower half, others larger and lardaceous looking. Two grayish brown nodules on the anterior surface of iris. Many vitreous opacities, both fine and large. Unable to see fundus. Pupils bound down by posterior synechiae. V. O. S.=20/200 with glass.

O. D. Slight conjunctival and ciliary injection. Pupil contracted. Many small deposits on Descemet's membrane. Opacities of vitreous. Fundus normal. V. O. D.=20/30 with glass.

Instilled 4% atropin in each eye for one hour at 15 minute intervals. O. D. pupil slightly and irregularly dilated. O. S. not dilated at all.

Ordered. Fomentation. 1% atropin 4 times a day.

October 4. Pupils about the same. Instilled 4% atropin 6 times at 15 minute intervals.

October 5. Condition practically the same. Introduced atropin crystals in lower cul de sac. Treatment continued. To sleep with windows open, sit out on piazza during day. Three nutritious meals with 2 egg nogs between.

October 6. About the same. Introduced atropin crystals in sac.

October 8. Pupils slightly dilated. Shows several post-synechiae stretching out. Instilled 4% atropin 3 times at 30 minute intervals.

October 11. Case about the same. Instilled 4% atropin once.

October 15. O. D. Fairly well dilated.

October 22. About the same.

October 27. Consultation with Dr. D. who agreed with findings and diagnosis of tubercular iritis, but advised diagnostic dose of tuberculin be given.

October 28. A. M. Patient given injection of old tuberculin. Late afternoon had chill and rise of temperature. 9 P. M. temperature 102.3°.

October 29. A. M. 100.4°. O. U. marked congestion. 8 ciliary injection. O. S. another nodule on iris. P. M. T. 101°.

October 30. A. M. T. 99°. Eyes quite inflamed. P. M. T. 100.5°.

October 31. A. M. T. 98.4°. P. M. T. 100°.

November 1. A. M. T. 98.6°. P. M. 98.6°.

November 2. O. U. much less conjunctival and ciliary injection, pupils dilating, fewer fine deposits on Descemet's membrane. Patient given therapeutic dose of tuberculin 1/500,000 mg. Placed on a farm in high section of the country and followed a regular tuberculosis regime.

November 6. O. U. deposits clearing on Descemet's membrane. Vitreous opacities not as numerous. Posterior synechiae loosening up. Areas of pigment on lenses showing where some have broken away. O. S. fundus shows some choroidal changes in periphery of temporal side.

The injections were made twice a week for 3 months with no untoward results. The posterior synechiae were broken down in both eyes with the exception of one broad one on the base of the iris O. S. Patient remained in the country following out treatment for nine months, gaining 30 pounds. At the end of that time the eyes were quiet. Some large opacities in vitreous O. U. Descemet's membrane normal and irides normal.

September 11, 1914. V. O. D. + 2.50 S + 1.00 C ax. 180° = 20/20.
V. O. S. + 3.00 S + 1.00 C ax. 165° = 20/20.
Add + 1.00 S. O. U. for near.

Eyes normal except for vitreous opacities and irregular pupil O. S.

1915, September 15. V. O. D. + 2.75 S + 1.50 C ax. 180° = 20/20.
V. O. S. + 3.25 S + 1.50 C ax. 165° = 20/20.
Add + 1.25 S. O. U.

Eyes normal except for vitreous opacities and irregular pupil O. S.

1919, September 5. V. O. D. + 3.00 S + 2.00 C ax. 180° = 20/20.
V. O. D. + 3.00 S + 1.50 C ax. 165° = 20/20.

Eyes normal except for vitreous opacities and irregular pupil O. S.

1921, April 20. V. O. D. = 20/20 V. O. S. = 20/20 with present distant glass. With present near glass reading distance 15½ inches. Continue with present glasses as her near work is using an adding machine. Fundus examination shows nothing abnormal except a few flocculent opacities of vitreous. Fields normal. General health good. Weight 139½ pounds.

CARCINOMA OF THE CARUNCLE.

G. M. DUCKWORTH, M. D.
CUERO, TEXAS.

W. H. S., aged 51, white, presented himself, November 30th with a growth from the inner canthus of the right eye covering the nasal portion of the sclera within 4 mm. of the cornea. The growth was about 3½ to 4 mm. in depth and adherent to both lid margins at the canthus. Vision 6/6. No induration of preauricular gland altho the submaxillary gland on the corresponding side was much enlarged and tender to touch. The pain in the eye was causing but little complaint, altho the patient did complain of severe pain at times in the right dorsal region. The growth had appeared about four months previously, and the patient thought it had grown more rapidly of late.

Clinical diagnosis: Carcinoma of the caruncle. A section of the growth was sent to the laboratory. Report: "Epithelioma of rather mild degree of malignancy, resembled basal celled carcinoma and would be diagnosed carcinoma if occurring on the skin." The patient was warned as to the possibility of recurrence if an effort were made to save the eye, and told that exenteration of the orbit was the safest procedure. He was also advised of the uselessness of the eye, and of the diplopia and other annoying symptoms which would ensue even if the growth were successfully removed. The patient against the wishes of the family declined exenteration or enucleation and insisted that the tumor be removed from the eye.

On December 3rd the growth was removed and found not adherent to the sclera. Sparing the internus muscle, as much of the tissue as was accessible in the space between the eyeball and the

orbital wall was removed. The submaxillary gland was excised and thermocautery applied to the lid margins where the growth had been adherent. After five days daily applications of radium were instituted. The wound cicatrized and healed after satisfactory reactions and the patient was able to go to his home, but for the severe pain in the dorsal region, which had grown more intense and constant since the operation. Pulse and temperature normal. Urine negative and Wassermann negative. A consultant pronounced the upper lobe of the right lung solidified which was verified by a radiograph. The patient was finally taken on a stretcher to his home quite a distance away, and he died in about forty days, presumably from a malignant disease within the thorax, altho the particulars of his death have not been communicated to me.

SYPHILITIC RETINAL DISEASE.

F. B. HARDING, M. D.

ALLENTOWN, PA.

Mr. R. D. single, age 24 years, printer by trade, was referred 3/1/20, by the State G. U. Clinic for examination of the eyes after the 17th injection of salvarsan, by reason of a rapid failing of vision. The last injection was given three days before examination, when a marked increase in the cloudy vision developed. The first noted change in vision was six weeks ago, following the 14th injection. It started first in the left eye and was followed in about one week by a like condition in the right. It has developed slowly and the vision in both eyes has become gradually worse. Reading of large type has been lost for the past three days; floating spots were also lately noticed; and when in the dark, sparks or "balls of fire" were complained of.

The infection occurred about one year ago. He had the chancre in June, 1919; and the treatment was begun July 8th, 1919, with 0.4 gm. of arsphenamine, gradually increased to 0.6 gm. after the third injection. The injections were given at seven day intervals with blood tests after six to eight injections, when two weeks were allowed to elapse. The Wassermann reactions diminished from 1 unit plus in July, 1919, to positive ¾ unit plus Feb. 9th, 1920, or at about the time the eye symptoms developed.

Up until this date no ocular trouble had been noticed. The injections were well born, and an improvement in the disease noted.

The lids, conjunctiva and cornea appeared normal; ocular movements were also normal. Vision R. 3/60. P. P. 16 cm? Type No. 2. L. 1/60. P. P. 16 cm? (with difficulty).

Both pupils appeared of a normal color but were very sluggish to light and convergence.

Under homatropin, mydriasis was very slow, the right pupil being concentric in position after 6 hours. The right cornea and aqueous and lens were normal. The right fundus was obscured by a haze of the vitreous in the posterior part. The papilla was slightly swollen and cloudy, with an indistinct outline and a slight increase of the secondary vessels of the disc.

The left eye ground was very indistinct and seen only in spots, the disc could not be seen, numerous dust like particles appeared thruout the vitreous, together with a web like formation, freely floating on movement of the eye.

Atropin 1% was ordered t. i. d., also KI 10 grains t. i. d., with a hot pack once daily; and the injections discontinued.

Four days later, 3/4/20, the vision had improved to 6/60 right eye and 1/60 left eye.

The vitreous of the right eye was somewhat clearer, the disc could be seen a little plainer. It appeared of a yellowish white color and of more distinct outline.

The left fundus was also somewhat clearer; the disc could be located but its outline remained indistinct due to the vitreous haze of dust and fine floating filaments.

The pupils of each eye had assumed the usual shape and amount of dilatation of four days instillation of atropin.

Rapid improvement of the vision followed so that on April 1st it was in the right 6/16 and in the left 3/60, with a corresponding clearing of the vitreous haze in each eye.

On April 3rd, the 18th injection was given and again a slight diminution of vision was noted, April 9th, Right 6/16-3, Left 3/60, when on the following day the 19th injection was given. This was followed by a marked loss of vision in each eye during the next twenty-four hours, together with frequent attacks of dizziness. The vision had fallen to R. 3/60, L. 1/60. A marked increase in the vitreous haze was noted in both eyes, taking on the form of flocculi in each, which obstructed the view of the fundus so that it could be seen only in spots. Following this second reaction and loss of vision the injections were discontinued. A Wassermann was made April 28th, which gave a delayed negative. The vision had improved in 18 days to R. 3/60, slight decrease of vitreous haze, allowing a few blood vessels to be seen, L. 3/15 with the flocculi occupying only the upper and more anterior part of the vitreous. The movement of the eye quickly up and down gave momentarily a better vision. Close reading was impossible. The potassium iodid and sweats were again followed out. The improvement of the vision was quite slow so that by June 4th, large print was seen by the left eye only, and vision had increased to 6/40 in the right eye and 6/16 in the left with the vitreous of both remaining hazy, and discs indistinctly seen, but the left much better than the right.

It is to be noted that now the left eye has the better vision, while the right, which cleared more rapidly after the first reaction, now shows less improvement than the left.

Vision 30 days after 1st reaction R. 6/60. L. 3/60. Vision 60 days after 2nd reaction R. 6/40 L. 6/16. A gradual improvement was noted so that by Aug. 10th, the vision had increased to R. 6/24, L, 6/8-2.

At this time a six days' course of mercury inhalations were started, after which a remarkable improvement was noted in the right eye so that by Oct. 25th, the vision was R. 6/8, L. 6/6. No haze of any sort nor dust particles was discernible in either eye, the media being perfectly clear in both, the discs quite distinct but somewhat whiter than normal; otherwise the fundus presented nothing abnormal. The Wassermann reaction at this time proved negative. The pupillary reactions to light, convergence and accommodation were normal, the punctum proximum being 14 and 12 cm. respectively, for the right and left.

Was this reaction due to a sudden liberation of toxins from the spirochetae, or an irritation of the structures of the eyes, or an anaphylactic reaction? Also, why would the rapid saturation of the system by mercury inhalations clear up the vitreous haze, no demonstrable lesions remaining in the eyes, if there had been a true inflammation. Since neuroretinitis syphilitica is an inflammation of the optic nerve and contiguous retina, (the inflammation extending even into the optic nerve behind the globe, and always resulting in vascular changes, followed by edema, infiltration and hemorrhage, and later by proliferation of the mesoblastic tissues of the vessel walls and the neuroglia), why would such changes occur after 16 injections of arsenic extending thru 6 months, which resulted in an improvement of the Wassermann test (showing only ¾ unit positive), and then bring on such a sudden irritation, together with the rapid involvement of the vitreous, if it were only due to a sudden liberation of toxins from the killed spirochetae; and why would saturation with mercury clear up the vitreous, instead of again liberating the toxins and causing a recurrence of the irritation? Or could the condition have been brought about by the change from arsphenamin to diarsenol on the 13th injection (13th to 16th injection, at which time the ocular condition was first noted)? It may be possible that the change from one arsenic preparation to another, of a different mode of manufacture, brings about such

marked reactions; but the process looks more like an anaphylactic stage of the system both to the drug and the toxins liberated by it in the eye, which in this case was likely the weakest spot. No other cases of a similar nature have been reported to my knowledge and no exact cause assigned to such a condition thus far.

CHRONIC SIMPLE GLAUCOMA. IRIDOTASIS.

WM. F. HOLZER, M. D.

WORCESTER, MASS.

Theodore H., Age 64, English, married, carpet weaver, come to the office July 10, 1920, complaining of indistinct and failing vision past three years, particularly the right eye, which failed about one year before the left. There had never been any pain associated with the failure of vision, no neuralgic headaches, nor rainbow halos.

Examination: O. D. Vision ?? of light perception. Anterior chamber was very shallow. Pupil measured 4 x 5 mm. oval, axis 90°, very sluggish. Media clear. Deep total pathologic excavation of the nerve head, with engorged veins bending sharply over the edge and pulsating at the base of excavation. The nerve was atropic, pale greenish color, lamina cribrosa very distinct. Arteries not unusual, veins markedly distended and moderately tortuous. Tension 52 mm. mercury (McLean).

O. S. Vision 5/60. Anterior chamber not quite as shallow as O. D. Pupil 3 mm. irregular in outline, slightly more active than fellow. Media clear. Deep glaucomatous excavation, engorged veins bending sharply over edge. No pulsation, except upon pressure on globe. Nerve more normal tint than fellow. Veins moderately distended and tortuous. Tension 46 (McLean). Field much contracted.

Immediate operation was advised to attempt to arrest destruction of the left optic nerve. Pilocarpin hydrochlorid 4 gr. to the ounce, four times daily, and eserin sulphate 2 gr. to the ounce, at night were prescribed.

July 14, 1920. Iridotasis at City Hospital, record No. A 15596. Tension O. D. 48, O. S. 40.

Operation: Left eye. At 8:00 A. M. patient was given ¼ gr. morphin sulphat and 1/200 gr. hyoscin hydrobromat subcutaneously. At 8:30 one drop of atropin sulphat 1% was instilled. At 9:00 o'clock after four instillations of 4% cocain hydrochlorat and 1-1000 adrenalin chlorid (separate solutions) at intervals of two minutes, the conjunctival sac was flushed with a warm 1:8000 mercury chloride solution, and a Clark (Weiss) speculum was introduced. The patient was directed to look down and the ocular conjunctiva was grasped with fixation forceps 10 mm. above the limbus at 12 o'clock and opened transversely 10 mm. The subconjunctival tissues were opened and carefully dissected free from the sclera down to the limbus. A Jaeger (Weiss) curved keratome was passed thru the sclera beginning 2 mm. above the limbus and emerging into the anterior chamber thru the angle. The keratome was introduced far enough to make the scleral incision 4 mm. in length. Fine curved iris forceps were introduced and the free border of the iris grasped at 12 o'clock and pulled gently into the wound,—the posterior surface of the iris then facing anteriorly. The conjunctiva was then pulled up in place, speculum removed, and the lids gently closed. A sterile dressing was applied, the eye bandaged, and protected by a Ring mask.

July 15, 1920. There was slight conjunctival injection at the wound. Anterior chamber was reestablished and deeper. There was a hernia of the iris thru the scleral wound, elevated 1 mm. and measuring 2 mm. broad. Roller bandage applied.

July 16, 1920. Eye dressed. Out of bed.

July 18, 1920. No injection. Bandage removed. Dark glasses.

July 24, 1920. Discharged from hospital Globe white. Hernia of iris same as last noted. Using myotics in right.

July 27, 1920. At office. Vision 5/15.

August 13, 1920. Field showed slight enlargement. Vision 5/15 with + 1.25 + .50 x 180 = 5/10 less 2 letters. Tension O. D. 44. O. S. 22. Using myotics in right.

August 28, 1920. Tension O. D. 40. O. S. 24. Vision 5/15 with + 1.25 + .50 x 180 = 5/10 ordered.

October 11, 1920. Vision same. Field practically same as August 13. Tension O. D. 44. O. S. 22. Using pilocarpin in right.

The question arose as to the choice of operation in this particular case, trephine, iridectomy or iridotasis. Here was a man possessing only one seeing eye, in which the field of vision was markedly contracted. Having seen two late infections following trephine, and noted contraction of the visual field and occasional severe hemorrhage following iridectomy, I decided upon iridotasis, because of its simplicity, and ease and dispatch with which the operation can be performed; assets when the patient has but one seeing eye. The adrenalin controls hemorrhage from the conjunctiva, and the atropin dilates the pupil so that the sphincter of the iris does not pull the incarcerated portion away from the scleral wound.

ENUCLEATION; FAT IMPLANTATION.

WILLIAM W. LEWIS, M. D.

ST. PAUL, MINN.

J. S., aged 16, was first seen at the City and County Hospital, in the service of the writer, March 1st, 1921. A working girl. Previous history negative, except "sore eyes" in infancy, leaving a blind deformed eye, an unsightly protruding eye, scarcely covered by eyelids. General appearance, undersized, undernourished girl.

The right eye was apparently normal as to exterior, except nystagmus. Face asymmetric, oscillating nystagmus. In the left eye protruding staphyloma of the cornea. The left lids scarcely covers a misshapen globe. Anterior chamber obliterated, iris adherent to cornea at centrally located scar. No pupil opening visible. Tension about normal. Fixation (cover test) oscillation. Movements unrestricted. Vision R. 1/10; L. light and shadows.

Ophthalmoscope: Right media clear; optic nerve head, deep inferior conus. Macula and periphery normal.

Treatment: March 3rd. Brow and lashes clipped. General anesthesia. Irrigation of conjunctival sac with boric solution. Conjunctiva snipped at the limbus, continued around the cornea; each of the four recti successively hooked and divided close to insertion in the sclera and the ends held with clamps. Optic nerve cut 1 cm. behind the globe. Obliques and remaining shreds freed. Globe removed. Hot normal salt pack applied while belly wall was opened. Belly wall, median line, opened and a small piece of fat dissected out. Opening in belly wall closed by encircling sutures to obliterate space. Piece of fat immersed in 95% alcohol and inserted into Tenon's capsule which was closed with a pucker string of catgut. Ends of oblique muscles sutured across stump. The conjunctival sac was closed with 40-day catgut. Pad dry dressing and bandage.

Mar. 4. Ice bag ordered to be applied continuously to hold down reaction which was considerable. Lids much swollen, some pain.

March 4. Tremendous reaction, discoloration; ice bag.

March 6. Lids almost black, tremendous reaction. Hot applications.

March 7. Lids look almost as if they would slough.

March 8. Reaction subsiding, considerable mucous secretion.

March 9 to 12. Reaction subsiding gradually.

March 12 to 18. Lids discolored but swelling of lids almost gone. Considerable secretion.

March 20. Considerable secretion, purulent.

April 1. Comes to the office. Styes on the lower lid. Stump looks good.

April 19. Glass shell given, fits fairly well.

April 15. Appearance is very good.

April 20. Getting along nicely. Stump is still edematous but conjunctival tissue covering is smooth and solid (firm). Motion is very satisfactory at this date. When shrinkage has progressed, a larger shell can be worn and more motion obtained.

REFRACTIVE ERROR WITH FOLLICULOSIS SIMULATING TRACHOMA.

T. E. Oertel, M. D.

AUGUSTA, GEORGIA.

February 12, 1921, T. A., male aged 20. Student at college. Family history negative. He had diseases of childhood and two years ago had tonsils and adenoids removed.

He has been obliged recently to study until one and two o'clock at night in order to prepare for examinations. He has experienced much trouble with his eyes, blurred vision, photophobia and pain in the globes. He had no headaches. For the past three weeks the lids have been stuck together each morning. He has never worn glasses and thinks his vision perfect.

A well nourished youth of blond type and ruddy complexion. Mentality above the average. There is a puffy look about the eyes and redness of the lid margins. The pupils are large, reaction to light and accommodation prompt.

The conjunctivae are deeply congested and studded with rows of succulant looking elevations of about one millimeter in diameter. These follicles are quite universal over both the lower and upper lids, the superior fornix and the plica semilunaris extending even beyond this fold onto the bulbar conjunctiva. The condition is bilateral. The conjunctival blood vessels are not easily made out on account of the swollen condition of the membrane. There is a small amount of mucoid secretion in each eye. No scar tissue can be demonstrated, nor are any of the follicles ulcerated.

The corneae clear. The media and fundi negative.

Vision: R. 20/65 with —0.75 ⌒ —2.50 cyl ax. 90° = 20/20. L. 20/70 with —0.75 ⌒ —2.50 cyl. ax. 90° = 20/20. Near add 0.50.

A prescription of homatropin hydrobromat was given him with directions to instill a drop in each eye every half hour for four hours and return at the expiration of this time for further examination.

Feb. 13. Under the cyloplegic skiascopy yielded the following result: O. D. cyl —3 ax. 90. O. S. cyl —3 ax. 80. With this correction his vision was 20/20 in each eye. Orthophoria.

Feb. 14. He has recovered from cycloplegic. Vision, O. D. with cyl —3 ax. 90° = 20/13. O. S. cyl —3 ax. 80° = 20/13. This prescribed in spectacle frame for constant wear.

Diagnosis: 1. Astigmatism—myopic, against the rule. 2. Follicular conjunctivitis, severe, result of eye strain. He was given an alum stick and instructed to apply it to the lids twice a day.

Feb. 17. Eyes quite comfortable, he is delighted with his glasses and improved vision. The congestion of the lids and folliculosis improved. Instructed to report in a month.

March 21. Folliculosis almost gone. Still a few granules on the lower conjunctivae. He has been able to do his college work with comparative comfort.

The case is of especial interest on account of the resemblance of the conjunctival condition to trachoma, which the sequel shows it was not.

MALIGNANT GROWTH OF LEFT EYEBALL PROBABLY SARCOMA OF CORNEA.

T. E. Peery, M. D.

BLUEFIELD, W. VA.

M. F. F., age 2½, female, white, came to my office July 17, 1920.

Diagnosis. Malignant growth of left eyeball, probably sarcoma of cornea.

Complaint. Growth on left eye; progressively getting larger and causing pain.

History. Family: Mother's aunt died of cancer. Personal: At 6 months of age, a white spot was noted on the eyeball which remained about the same size for about 5 months, when it began to spread; child was taken to family physician who treated it at various times but it continued to grow until the parents became alarmed; after it began to grow rapidly, they decided to consult a specialist; for the last 3 weeks the child has had no appetite, and has been nauseated, suffered a great deal of pain, especially at night, and would not play around.

External Examination. R. Lids, lacrimal apparatus, cornea and iris normal; pupil reacts to light and accommodation. L. Large, irregular, fibrous growth involving globe and protruding between lids; none of intraocular structures recognizable.

Ophthalmoscopic Findings: R. Cornea, lens media and fundus normal. L. Pupil obliterated.

Treatment. Consultation held with Dr. R. O. Rogers, of the Bluefield Sanitarium in regard to enucleation and radiation. Enucleation decided upon to be followed by radiation. The father was advised accordingly but he refused to have this done until he could consult his wife; and the child consequently returned home.

July 22, 1920 the patient returned to the hospital for the operation. The usual preparations for the operation were made.

Patient. The face, lids and surrounding areas were thoroly cleansed with warm water and soap, and washed with 1/2000 bichlorid solution.

Instruments. The instruments were boiled in 1% solution of soda, rinsed in sterile water and placed in sterile gauze to dry.

Surgeon and Assistants. The hands were scrubbed with warm water and soap, washed thru 1-1000 bichlorid solution and then rinsed in sterile water.

July 22, 1920. Postoperative Diagnosis. Malignant growth of left eyeball, probably sarcoma of cornea.

Condition of Patient. Temperature, 100°. Respiration, 32. Pulse, 110. Blood pressure, not taken. General condition bad. Anesthetist, Dr. R. O. Rogers. Anesthetic, ether. Assistant, Miss Laura Hawley, R. N.

Operation. Enucleation of left eyeball and immediate application of radium. Condition of patient during operation fair.

What Was Done. I introduced Weeks' speculum and locked it. I then picked up the conjunctiva half way back from the limbus with a mouse tooth forceps, dissected around the growth, cutting thru Tenon's capsule. The internal rectus muscle was picked up on a strabismus hook and severed far back from its attachment to the sclera with Stevens' scissors. The dissection was carried to the superior rectus muscle, the external rectus muscle and the inferior rectus muscle which were similarly picked up and severed far back from their insertion. A strabismus hook was passed all around the globe, heel foremost, and all adhesions found were picked up and severed, entirely freeing the globe except from the superior and inferior oblique muscles and from the optic nerve. I then passed the closed enucleation scissors between the conjunctiva and eyeball on the nasal side with the points hugging the eyeball, located the optic nerve, opened the scissors, engaged and cut it as far back of the globe as possible. The protruding globe was then pulled forward and the superior and inferior oblique muscles were cut. A sterile gauze sponge was then introduced into the socket, left 3 minutes, removed and the remaining conjunctiva closed by a purse string suture. The socket was then irrigated with a 1/5000 bichlorid solution and the patient turned over to Dr. Rogers who applied radium.

July 22, 1920, 9:30 a. m. Dr. Rogers immediately placed 50 mg. of radium carrying a full complement of screens for beta and secondary rays within the orbit. The cavity resulting from the enucleation furnished a space into which the radium with its screens fitted snuggly, and occupying a central position within the orbit, the condition

was ideal for the rays to come in contact with and produce destructive effect upon all local malignant cells which an enucleation alone does not include. A simple dressing was applied as in any ordinary enucleation.

This being a condition heretofore almost certain of recurrence with fatal termination, the primary object was to destroy entirely the malignant tumor, and no consideration was had for a socket which might later hold an artificial eye. To this end, the radium was left in place for a period of 24 hours, making a total dose of 1200 milligram hours.

July 23, 7:30 a. m. Condition of patient good; patient not suffering. 9:30 a. m. Dressing and radium removed by Dr. Rogers. The conjunctival sac cleansed with saturated solution of boric acid; lids closed; dressings and bandage reapplied.

7:30 p. m. Condition good. Dressings removed, sac cleansed and rebandaged. Patient was seen night and morning each day until August 4 and improvement noted.

July 25 to August 3. The usual treatments were given on these dates.

August 4. Definite signs of moderately severe radium burns, including both lids and apparently all soft tissue in the orbit were observed at this time. The patient was allowed to return home with instructions given parents for irrigations and treatments.

August 14. Patient in good condition; burns healing nicely; lids not distorted by burns; general health improving. Former instructions as to treatments repeated.

September 18. No return of growth; child's appetite good; gaining flesh; runs and plays. Father states that she is like a different child.

November 6. Still improving in every way. No return of growth.

January 11, 1921. No return; child apparently in excellent condition.

April 30, 1921. No return of growth; child well and apparently strong.

This case is being watched at regular monthly intervals by Dr. Rogers and myself with the intention of continuing these inspections for the next three years.

NEOPLASM OR CYST OF HYPOPHYSIS CEREBRI.

MARCUS RAVDIN, M.D.
EVANSVILLE, INDIANA.

April 29, 1913, Dr. C. P. B., aged 43, Physician.

Family History: Father well. Mother and two sisters tuberculosis. Five brothers living and well. No cancer history in the family.

Personal History: Alcohol and tobacco moderate until two years ago. Habitual heavy eater. General health good except for occasional gastric disturbances. No venereal infection.

Complaint of patient: Slight headache. Difficult reading, especially at night. Distant vision very poor in left eye for last year or more. No epiphora. No haloes, no vertigo. Wants glasses to enable him to read. Had some from an optometrist, but did not help him much.

Examination: Lid margins, palpebral and ocular conjunctiva normal. Corneas clear. Anterior chambers of good depth. Pupils round, right 3 mm. left, 4 mm. React sluggishly to light, consensual and in accommodation. Tension by finger palpation normal. Vision L. 10/200 R. 20/30, no improvement with glasses. Reads No. 3 Jaeger, with + 1.50 with right eye only.

Ophthalmoscopic examination: Right media clear, optic disc round, margins well defined, blood vessels normal. No perceptible retinal lesion. Left: Media clear, optic disc well defined margins, pale yellow, more so in nasal half. Large blood vessels appear normal. The small vessels are hardly visible.

Fields of vision: Absolute bitemporal hemianopsia, and slight contraction of retained field. Charts submitted. Attempts at this stage of the examination to elicit hemianopic pupil reaction of Wernicke failed to bring out the reaction properly.

Examination Nose and Throat: Septum straight. Turbinals normal. No secretion from ethmoid region. Transillumination of anterior accessory sinuses negative. Tonsils apparently not infected.

Tentative Working Diagnosis: Pituitary tumor or cyst. Pressure on optic

chiasm. The significance of bitemporal hemianopsia was discussed with the patient. Advised him to consult Dr. Harvey Cushing, or Drs. Spiller and Frazier as soon as possible. In the meantime recommended Roentgenograms of the accessory sinuses and sellar regions to be made.

History: December 10, 1913: Dr. B. came to see me. States that his vision is about as before except that he has more difficulty when driving at night. Declined further examination of his eyes. Is taking K.I. and mercury on general principles. When again urged to consult Dr. Cushing or Dr. Frazier, or at least have a Roentgenogram made, he said, "Well, what is the use. Cushing or Frazier will advise a brain operation and I am not willing. I hope you are mistaken in your diagnosis."

July 23, 1918. Was called over the telephone by Dr. J. Y. Welborn, chief surgeon of the Walker Hospital, to come for consultation. Stated that Dr. B. had been brought in unconscious.

Mrs. B.'s statement to me at the Hospital: "After my husband's second visit to you in 1913, his headaches became more often and severe. He had great difficulty in reading, and he could not practice much. His memory has been poor for the past year. Has been drowsy and at times it has been difficult to rouse him. For past six weeks has had intense headache. Two days ago became delirious. There has been albumin in his urine for the last three or four years. No sugar. Voided urine in large quantities. Had marked thirst lately and drank large quantities of water."

I found Dr. B. in active delirium. Impossible to make satisfactory fundus examination. Consultation with Dr. Welborn. Advised decompression. Radiograph taken next day showed large sella. (Print submitted.)

July 25, 1918: Bilateral temporal decompression. (Dr. Welborn.) Brain bulged into trephine opening. No pulsation. Swg. drain.

August 10, 1918: Regained consciousness a few days after operation. Sees dimly with the right eye. None with the left. Pupils semidilated. Very slight response.

Ophthalmoscopic examination. Right eye, choked disc. Left eye, optic disc pale yellow thruout.

August 19, 1918: Left the hospital after being up and about a few days. Gaining in strength. Mind not entirely clear, but recognizes his wife by her voice. Family again advised to take Dr. B. to a brain surgeon.

Dr. B. died at his home some few months later. In deference to his wishes while still sound in mind, the family made no attempt to have him operated on. No autopsy.

A VISIT TO DR. J. KOMOTO OF TOKYO.

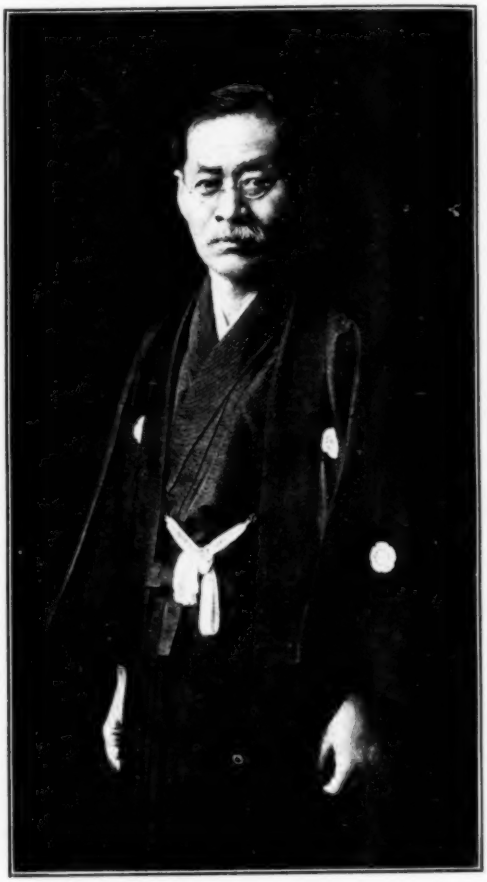
HARVEY J. HOWARD, M.D., Oph.D.

PEKING, CHINA.

This paper contains a personal narrative that may help to acquaint Western ophthalmologists with the conditions and developments of ophthalmic practice in the far East. It also records historical data of interest and importance.

To be acclaimed the "Father" of an important branch of science in a country, during one's lifetime by one's own countrymen, is an honor accorded to but few men. The "Father of Ophthalmology" in Japan is the name given to Dr. Komoto of Tokyo by fellow physicians of his native land. This does not mean that Dr. Komoto was the first physician to take up the specialty of ophthalmology in that country. The untimely death at the very beginning of his career of Dr. Ume, the first native professor of Ophthalmology of the Imperial University Medical College at Tokyo, placed the responsibility of teaching that specialty to the students of the only medical school of any consequence then existing in Japan, upon the brilliant young man who had just returned from three years of study with the leading ophthalmologists in Germany. It is Dr. Komoto then who for thirty years has taught and inspired generation after generation of undergraduates and who has been largely responsible for the postgraduate training of the majority of the men who have done so much to establish a high standard for ophthalmology in Japan.

With the knowledge of such a career in mind, one can possibly imagine the surprise of the writer on meeting Dr. Komoto in the summer of 1919, and finding him a vigorous man, apparently in the prime of life. This meeting occurred at his summer villa in Karuizawa, which, with an elevation of 3200 feet and with the active and glorious volcano Mt. Asama only nine miles away, is one of the favorite spots, during the hot summers of Japan's lowlands. I was charmed with his gracious manner and his congenial smile, I was impressed with his hearty laugh, his rapid, clear-cut speech and his tremendous energy. Dr. Komoto does not speak English, but reads and speaks German fluently. It was, however, in his native tongue that he preferred to speak thru our interpreter.



Professor Jiujiro Komoto, Tokyo, Japan.

During the summer of 1920 I again had the privilege of meeting Dr. Komoto; this time at the eye clinic of the Imperial University Medical College in Tokyo, and later at his home and his private hospital in another part of that immense city.

He apologized because he was working in the same outpatient building

in which he began his career as Professor of Ophthalmology thirty years ago. But to me it was an inspiration to see still in actual use the very place where our branch of medical science was initiated in the empire of Japan, and where many of the leaders in ophthalmology in that country had their original training.

In the policlinic, as the outpatient department is called in Japan after the German fashion, approximately 8000 new eye patients were treated last year by Dr. Komoto and his four full time assistants. Dr. Komoto stated that fully twenty-five per cent of their patients have trachoma, which is a lower percentage than is found in other cities of Japan. Over half of those refracted were myopic.

Outpatient entrance, Department of Ophthalmology, Imperial University Medical College, Tokyo, Japan.

Adjoining the policlinic are the in patient wards, which contain thirty-five foreign style beds. The new building for the eye department, which is to be erected in the near future, will have fifty beds, including ten for contagious cases. Dr. Komoto said that they performed a great many operations for glaucoma, but attributed this to the fact that these cases were referred to the hospital from all over Japan. He thought that the normal ratio between cataract and glaucoma in the Tokyo district was about three to one, which was about the same proportion, it seemed to him, that occurred in Germany. The classical Graefe operation for cataract is still adhered to. In fact I failed to find any Japanese ophthalmologist in my visits to nineteen of the twenty medical schools in Japan, who stated that he was employing any of the methods of intracapsular extraction.

There is one phase of work which a visitor will never fail to see in a Japanese medical college hospital, and that is laboratory work. In Dr. Komoto's department I was shown into two eye laboratories, the combined size of the two being about 20 by 60 feet. Pathology and bacteriology are given a large place in his regular departmental and postgraduate work. An equipment, including four microtomes, three incubators and a photomicrographic outfit in these rooms, is proof that opportunity for independent work is given to any assistant who wants it. A Japanese scientist is loath to speak much about his research work, but I gathered from remarks made that

staff members were engaged in special problems relating to vitamines and the eye.

A feature of Japanese medical schools and hospitals is the independence of the various departments. This is nowhere better illustrated than in the matter of large departmental libraries, and the usual lack of a central library. This has its advantages as well as its disadvantages. In Dr. Komoto's department I was shown into two other rooms, one of which was Dr. Komoto's own study and library and the other a study and library for his staff. On the shelves of these rooms there were the following current ophthalmic journals: American 2, British 1, French 3, German 7, Japanese 5; total 18. There were also many journals of other branches of medical science. In addition there were several thousands of volumes of bound journals and monographs, among the latter familiar books of recent publication by American authors.

Eye ward and connecting corridor, Imperial University Medical College, Tokyo, Japan.

The undergraduate course in ophthalmology at the Imperial Medical College in Tokyo consists of 108 hours of instruction and is given in the senior or fourth year. The subject is introduced by 48 hours of lectures and demonstrations. The practical work consists of amphitheatre clinic for 24 hours and policlinic for 36 hours. In the latter, the students are divided into groups of six or eight and are assigned patients for examination. Work in the dark room is considered very important, and students must learn to use the retinoscope and ophthalmoscope. The dark room in Dr. Komoto's department is 18 by 44 feet in size and gives an adequate opportunity for class instruction or for each student to make his examinations. The eye curriculum therefore is essentially a practical one. It enables the professor and his assistants to be in close contact with the students thruout the course.

There is no such thing as short postgraduate eye courses in Tokyo or in any other institution in Japan, as far as I could learn. Graduates are admitted as assistants and as such contract to remain at least a year. They generally remain longer than one year and are advanced in their grade of assistantship as they progress. Many of the leading ophthalmologists in Japan have early in their career been assistants in Dr. Komoto's department. Postgrad-

uate students are also admitted, many of them on scholarships. But these men, also, must remain at least a year and practically enter on the basis of junior assistants. Those who show unusual ability may later be taken on as assistants. In any case the mistake is not made either by the teacher or the student in supposing that an eye training can be secured in three months.

On account of the inadequate facilities for taking care of the better class of private patients in the large general hospitals in Japan, a great majority of the most successful physicians have developed their own private hospitals. Dr. Komoto has an eye hospital of sixty beds adjoining his home. The only foreign feature about this dainty place, is the large eye examination room with its modern equipment, and the drug room next door. Everything else is typically Japanese. At the outer door we leave our shoes and the servants provide us with house slippers. Thruout the hospital we hear the soft slip-slap of the nurses and attendants as they go about their duties.

The private rooms are all occupied. There are sliding doors that open on every side. The patients are lying on the floor, which is covered two inches thick with choice matting. Sitting on the matting beside the patient is a relative or an attendant fanning the patient or rendering some other little service, like pouring out his tea. As we follow Dr. Komoto, he tells us about his cases. Along one aisle are the severe cases of gonorrheal ophthalmia and trachoma. In another section are the cataract and glaucoma cases. There is nowhere the slightest odor that reminds one of a hospital. Everything is wonderfully clean and the woodwork in natural color is shining. The only odor is from the pine wood and the new matting. There are no flowers, however. To the superstitious Japanese, a flower, today full-blown and filling the air with fragrance, tomorrow seared and withered, betokens the speedy approach of death. Instead, therefore, of cheering a patient, the sight of a bunch of flowers or a lovely plant fills him with gloomy apprehension.

In his home, like all true Japanese, Dr. Komoto wears the native costume, but generally dresses in foreign style clothes when he goes to the University. I had heard much also about Mrs. Komoto, and had hoped to meet her, but she was at their summer home in Karuizawa. Mrs. Komoto has all her life taken an active interest in philanthropic and religious work.

From one of his friends and former students, I was able to gather some information about his life. Dr. Jiujiro Komoto was born on August 15, 1859. His native town is Toyoka, in Tajima Prefecture, which, located in the northern island of Hokkaido, lies opposite Vladivostok. Dr. Komoto's mother died when he was only eight years old. His father was a "Samurai" or knight who saw much active military service; so the child knew little of peace and happiness at home.

The boy did not receive a regular primary or middle school education. In his early years, he acquired under private instructors some knowledge of Chinese literature. At the age of fifteen he was sent to Yokohama, where he received instruction from a German, Herr Kaspell. From him he acquired the German language. At this time he conceived a great interest for geography, and used to read Karl Ritter, the geographer, a great deal. Indeed, so deeply interested did he become in the subject, that he wished to be a geographer himself; but to this choice an uncle who was responsible for his education would not consent, so the youth turned to medicine. At the age of 26 he graduated from the Imperial University Medical College in Tokyo. Following this, he was an assistant in surgery for three years under the famous German teacher, Dr. Scriba, who, in addition to his work in surgery, taught ophthalmology at the Tokyo institution from 1885 to 1889. At the close of this period of service, Dr. Komoto was selected by the Imperial Government to go abroad for further study.

So he went to Germany, settling first in Freiburg, where he studied ophthal-

mology under Manz. Later he proceeded to Würzburg, to be under Michel; then to Berlin, where he received instruction from Hirschberg. Finally he visited Vienna, to work with Fuchs. Dr. Komoto returned to Japan in 1891, at the age of 32, and was appointed Professor of Ophthalmology in the Imperial University Medical College in Tokyo. Eight years later he revisited Europe, spending a year there in special study.

Dr. Komoto holds the degrees of "Gakushi" and "Hakushi," which correspond to our M. D. and our Ph. D. respectively. Graduates of the Imperial University Medical Colleges receive the former degree. The latter is given to a candidate upon the acceptable completion of research and the presentation of a thesis. If the paper is accepted by the professors of the University, he is recommended for the degree of "Hakushi," which is given by the Minister of Education of the Imperial Government.

Dr. Komoto has been decorated by the Emperor with the First Order of Merit of the Rising Sun, and given the Sixth Rank at Court. This may mean more after one is informed that altogether there are nine orders and sixteen ranks. Among his fellow countrymen he is therefore considered a high official of the first class.

On account of his scientific contributions, Dr. Komoto holds a place of high esteem thruout the world. Among his numerous works should be mentioned his "Ganka Kaku" (Textbook of Ophthalmology) in three volumes, and his "How to use the Ophthalmoscope." Last year there was published a "Jubilee Volume" celebrating Professor Komoto's sixty-first birthday. Abstracts from this work appeared in the April number, 1921, of this journal.

Dr. Komoto has been a faithful contributor to the journal of the Japan Ophthalmological Society since its inception twenty-four years ago. Most of his writings have appeared in this monthly journal, which is the leading ophthalmologic journal in Japan. An analysis of the titles of his 190 articles that have appeared in this journal show a wide range of interest and experience. They may be classified as follows:

Operations	
Cataract	8
Glaucoma	7
Lids and conjunctiva	16
Orbit	7
Miscellaneous	7
Total	45
Injuries to the eye	20
Diseases	
Ocular manifestations of general diseases	10
Ocular manifestations of syphilis	8
Ocular manifestations of tuberculosis	3
Diseases of the lids and conjunctiva	8
Diseases of the cornea and sclera	10
Diseases of the choroid, not including sympathetic ophthalmia	1
Diseases of the optic nerve and retina	11
Sympathetic ophthalmia	7
Toxic amblyopia	2
Tumors of the eye	15
Anomalies	
Congenital anomalies	10
Anomalies of accommodation and ocular movements	7
Refraction	2
Remedies	3
Apparatus	5
Diagnostic methods	4
Photography and art	2
Experimental physiology	1
History of ophthalmology	16
Total	190

This analysis shows that Dr. Komoto is essentially a clinical man, since 171 articles refer to the diagnosis and treatment of ocular diseases, injuries and anomalies. Of the remaining 19 articles, 16 are devoted to subjects that may be classified under history of ophthalmology. In a country where laboratory work of the research type is stressed to the detriment of the clinical work, it is fortunate indeed for the soci-

ologic and humanistic side of ophthalmology that Dr. Komoto has either by preference or by fate devoted most of his energies to the care of his multitudes of patients. It has created a confidence in and a desire for the best kind of western medicine among a people who were slow to give up their prejudices in favor of the old. It has done more than anything else, perhaps, to develop in Japan a large body of ophthalmologists who, in contradistinction to the attitude of very many Japanese medical men, consider their profession a healing art rather than an opportunity to secure subjects for their experimental laboratories.

Japan does indeed owe Dr. Komoto a debt of gratitude for his untiring service to her people. It is good therefore to know that he is "not without honor" in his own country. It is certain that no one will ever be able to dispute the title that his fellow physicians have given him, "The Father of Ophthalmology in Japan."

SOCIETY PROCEEDINGS

Reports for this department should be sent at the earliest date practicable to Dr. Harry S. Gradle, 22 E. Washington St., Chicago, Illinois. These reports should present briefly the important scientific papers and discussions.

SOCIÉTÉ BELGE D'OPHTALMOLOGIE.

May 1st, 1921

Interstitial Keratitis from Injury.

WEEKERS, Liege, reports a case of typical interstitial keratitis, occurring after duly verified injury, in a man 60 years old who worked in a quarry. There was no trace of syphilis and the Bordet-Wassermann reaction was negative.

A diagnosis of interstitial keratitis from injury should not be made except after most careful consideration. All of the cases in the literature cannot be accepted as authentic. In some cases, it is a question of coincidence; in others the injury never existed but was invoked in order to demonstrate freedom from disease. When the injury actually occurred, as in most of the remaining cases, it acted only as the exciting cause for the manifestation of the syphilis, in an individual already infected.

However, the above case shows that the question must remain open, for in it there was typical interstitial keratitis; but the most searching clinical examination did not permit of attributing the lesion, even indirectly, to syphilis.

The problem is also complicated by forms of deep, atypical keratitis, involving often only a portion of the cornea. Such cases, probably due to injury, are not so exceptional. The observation of many such cases has convinced the author that they are entirely local in nature and uninfluenced by syphilis or any other general disease. Sometimes one finds as the origin of these lesions a slight loss of superficial substance, so slight that it might easily be overlooked. The superficial lesion is the seat of an infiltration extending, not along the surface, but to the interior of the corneal parenchyma. This deep infiltration shows an acknowledged predilection for the center of the cornea. Perhaps in these cases, the outer surface is immune to bacteria so that the lesion propagates only in the interior of the corneal parenchyma.

Aniridia and Glaucoma.

WEEKERS, Liege, presented the case of a patient, 48 years old, who had aniridia in both eyes, with congenital cataract and glaucoma. One of his children, 8 years old, suffered from bilateral buphthalmos with aniridia and cataract, with luxation of the crystalline lens above in one eye.

Great importance is attached to the light that such cases throw upon the origin of the intraocular fluids and the pathogenesis of glaucoma.

The inferences regarding the normal aqueous humor, as drawn from the aniridic eye, have been raised as the

chief objection to the iridic origin of the aqueous. On the other hand, the coexistence of aniridia and glaucoma seems to destroy the theory attributing glaucoma to an obstruction in the elimination of the aqueous humor at the line of the iridocorneal angle. In reality, the process is not so simple. Anatomic examination has shown that aniridia is never complete. It is, therefort, not impossible that the iris elements, present in aniridia, suffice to give birth to the aqueous humor. It is also possible, considering their peripheric location, that they obstruct the iridocorneal angle. The necessary conclusion, therefore, is that it is not possible to make a definite deduction from these facts either as to the origin of the aqueous humor or as to the pathogenesis of glaucoma.

In this glaucomatous and aniridic patient, pilocarpin reduced the tension to normal in both eyes. Nevertheless, it has long been believed that pilocarpin in the treatment of glaucoma is closely associated with changes in the pupil and iris. However, according to Groenholm, pilocarpin acts upon the ocular tension thru the vessels; by constricting the vessels, it diminishes the production of aqueous. This theory explains better the conditions observed in Weekers' patient.

Familial Nonsyphilitic Retinitis.

KLEEFELD, Brussels, stated that in three boys and two girls belonging to a family of eight children, there occurred diminution of vision at the age of ten and a half, with central scotoma for green and red; accompanied by retinitis punctata, more marked in the macular region, and optic atrophy. The Bordet-Wassermann was negative.

Extreme Unilateral Miosis.

KLEEFELD, Brussels, reported the case of a woman suffering from extreme miosis of one eye, without any concomitant nervous lesion.

Subconjunctival Injection of Glycerinated Extract of Testicle.

KLEEFELD. Glycerinated extract of testicle in subconjunctival injections is mildly hypertonic, because of the glycerin, and irritant, because of the organic substances.

Therapeutically, it can be used to induce the resorption of exudates, as fine, dustlike, vitreous hemorrhages. This treament is more effective and more prolonged than those generally employed. It is sufficient to make one injection a day, for from three to five days, that is until the conjunctiva is permanently congested. A month's intermission will then be necessary before the second series of injections.

Silver Salvarsan in Syphilitic Affections of the Optic Nerve.

The experiments of RASQUIN (Namur) have convinced him that silver salvarsan, when properly administered is not a dangerous medicine.

Pseudoblastomy.

MARBAIX, Tournai, and VAN DUYSE, Gand. Exophthalmos with paralysis of the third nerve developed in a patient without inflammatory symptoms. The globe could not be pressed backward. Diagnosis; malignant retrobulbar tumor. A Krönlein operation was performed, but no tumor was found. On resection of the lacrimal gland, it was found to be hypertrophied behind. Resistent tissue in the walls of the orbit could not be felt with the finger.

Histologic examination: Disseminated, perivascular, lymphocytic foci were found. There were lymphocytes and diffuse plasma cells in the vacular spaces. There were hyalin degeneration of the vascular walls and, finally, lesions of chronic inflammation. The exophthalmos was reduced, but the ptosis was accentuated; and vision was reduced to 0.1 by a film of neuroparalytic keratitis.

The examination of the blood, after the operation, showed an excess of lymphocytes over polynuclear leucocytes, that is a lymphocythemia. The hemoglobin count, hematin and white corpuscles were normal.

Tuberculosis and syphilis were clearly excluded.

The histologic lesions were identical with those which Birch-Hirschfeld describes successively as disseminated lymphocytosis (1905) and diffuse lym-

phocytosis (1909). According to Meller, lymphocytosis is always compact, but according to Hocheim, it may be diffuse.

Considering the normal state of the blood in his two operations, Birch-Hirschfeld rejected the idea of a general disease, such as the pseudoleukemia supposed by Hocheim. He admits hyperplasia of the preexistent lymph tissue (the embryonic perivascular layers of Ribbert) and concedes that a neoplasm may be the unique and only symptom of a general disease, as is shown in the present case by the fact that neither the blood nor the peripheral glands were involved.

The histologic examination should take account of the lymphosarcoma of Kundarat, which is sometimes diffuse and which arises from the sphenoid; as well as the leucosarcoma of Sternberg, which was demonstrated by clinical examination.

The study of lymphomas is of primary importance in the diagnosis of orbital tumors. All tests should be applied in such diagnosis; Bordet-Wassermann, tuberculin, opsonic index, leucocytosis, and rhinologic and X-ray examination.

Congenital Obstruction of the Lacrimal Passages.

LEBOUCQ, Gand. Of six children, born to healthy parents, five showed immediately after birth a bilateral lacrimal obstruction. The remaining child had a monolateral obstruction. Probing resulted in immediate cure.

Paralysis of the Lids in Cataract Operation.

VAN LINT, Brussels, uses a 2% novocain solution, with a drop of adrenalin to each cc., added. A 3.5 cm. needle is entered 1 cm. back of the point of intersection of a horizontal line, passing the lower margin of the orbit, and a vertical line at its external margin. He injects 2 cc. of the solution to within 5 mm. of the lower margin of the orbit.

A second puncture is made 1 cm. above the first. The needle is directed upward, and 1 cc. of the solution is injected as far as the external palpebral ligament. A third puncture is made on a line with the outer terminus of the eyebrow, and 1 cc. of the solution is injected from above downward to the external palpebral ligament.

Such paralysis of the lids greatly facilitates a cataract operation.

Siderosis of the Eye.

In a case of siderosis, H. COPPEZ, Brussels, examined the aqueous humor with the Gullstrand slit lamp. It appeared yellow in color. Chemical analysis demonstrated the presence of iron.

MARCEL DANIS,
Secretary.

NETHERLANDS OPHTHALMOLOGICAL SOCIETY.

56th Semiannual Meeting

Translated from the Nederlandische Tydschrift v. Geneeskunde by Dr. E. E. Blaauw.

PROF. G. F. ROCHAT, Presiding.

Persistent Facial Slit and the Origin of the Tear Ducts.

J. VAN DER HOEVE showed photographs of a child on the left side of whose face the facial slit had remained partially open and had produced a large coloboma of the lower lid. The lower punctum was situated to the temporal side of the coloboma. Both tear ducts were shown in a Roentgenograph after thorium injection, with sounds in the upper and lower canaliculus. Altho this congenital deviation seems to prove that the canaliculi originate from the lid margins, van der Hoeve still accepts the opinion of Ask that the canaliculi originate as shoots from the lacrimal sac; and he showed histologic, embryonic specimens of Ask.

Ocular Symptoms of Osteomyelitis of the Superior Maxilla in New Born.

E. MARX stated that what is at the present time called osteomyelitis of the superior maxilla in the new born was formerly called acute sinuitis of the antrum of Highmore. It presents some ocular symptoms, and during the last nine years Marx saw three cases. The first, a child a few weeks old, had conjunctivitis, a fistula in the neighborhood of the right tear sac, a yellowish

secretion from the right nostril and a hard palate. To this last symptom, his attention was not called; he discovered it later. The true condition was not recognized; it was supposed to be a suppuration of the tear sac, altho on pressure no secretion appeared. The tear ducts seemed normal so that after the surgeon had taken care of the osteomyelitis, the conjunctivitis and the fistula were quickly cured by cleansing.

The second child had a purulent secretion in the mouth from both the superior maxillae. The upper and lower eyelids were thickened and red, and chemosis was present. A fistula appeared in the right lower lid, from which pus was secreted containing staphylococci. The left lower lid and also the tear sacs were swollen. The conjunctiva of both eyes were red and showed secretion, but the tear ducts were open. A few days later a symmetric fistula appeared in the left lower lid.

The third patient was admitted to the surgical clinic for swelling of the palate and alveolar process, with purulent discharge in the mouth and a fistula in the mucous membrane of the upper lid. The right eye protruded visibly; its mobility was apparently normal, but the vessels in the fundus were enlarged. The pupils were normal and equal, and reacted well to light. Tension was normal. After two days the protrusion was less, but the region of the right tear sac and lower lid and palpebral conjunctiva were swollen, and thickened and showed a mucous discharge, containing yellow staphylococci; as did also the discharge in the mouth. The tear ducts functioned normally. After some days all ocular manifestations had subsided, tho the purulent secretion from the maxillae still continued. This child also recovered.

Some thirty five cases are known in the literature. All writers consider this osteomyelitis of the maxillae to be caused by a bacterial infection. Pneumococci and streptococci appear oftener in the new born than in other people, in association with staphylococci. Careful bacterial investigation in the beginning is necessary. Most writers think that the entrance must be by the way of the alveolar process, following small superficial traumatisms. The inflammation continues in the spongiosa; usually soon followed by swelling of the lids, a fistula in the region of the tear sac, inflammation of the conjunctiva, purulent secretion from the nose, swelling and fistulisation of the alveolar process and palate, falling out of the undeveloped teeth and bony sequesters. The prognosis is usually favorable if there is early intervention, and the general condition is good. However, the death rate is still 25%. The treatment should be conservative for the ocular symptoms; no incision in the lower lid should be made even tho an abscess is forming, as the entire process is cured thru treatment of the palate and alveolar process, whereas from incision, a bad scar with ectropion may result. The conjunctivitis and swelling of the lids is due to a collateral edema. Exophthalmos was found in ten of the thirty-five cases; probably this is caused by simultaneous infection of the ethmoid cells.

Marx saw recently a six months old patient with osteomyelitis of the superior maxilla, which had not been recognized by the family physician and not treated. A fistula and contracted scar were present with ectropion of the lower lid.

Determination of the resistance of the Lacrimal Canal.

A. Sonnen and H. Weve referred to Rochat's communication at the foregoing meeting. They used an .08 cm. thick and an .05 cm. wide, rubber tube, 1.7 mm. long, with a very fine cannula at one end; and at the other end a glass funnel. The entire tube is graduated in centimeters. The patient is seated on a low bench with the head back; and while the examiner passes the cannula into the lacrimal sac, an assistant raises the funnel, which was originally below the punctum, at a velocity of 25 cm. second. The patient is to indicate when the water enters the mouth or nose. When this occurs, the

funnel is slowly lowered, until the patient no longer feels the water. This process is then repeated. The heights above the lacrimal canal, to which the funnel has been raised, are recorded, with the subtraction of 5 cm. for the resistance of the manometer. Eighteen normal lacrimal ducts in twelve persons were examined. The apices of the first measurements were all below 45 cm. The second apex was as a rule lower than the first. Generally it was found to be zero, which shows that in certain cases it had a negative value. Entering the cannula only a few milimeters in the canaliculus, where conditions were normal, did not give a different reading. Where there was a difference, the apex, contrary to expectation, was higher when the cannula was introduced in the sac.

Thirty-five cases of dacryocystitis were examined; and all values for the apex were found from the upper limit of the normal to complete obstruction. However, a marked percentage of cases with a water pressure of 40 to 80 cm. was found and a similar percentage above 160 cm. The relatively light and rather severe cases predominate. In cases with a pressure above 160 cm., only a part of the passages could be syringed thru with Anel.

It was concluded that in normal conditions a "pump mechanism" overcomes a pressure of not more than 40 cm.; and in general a higher resistance provokes epiphora.

The cases of dacryocystitis without total stenosis distinguish themselves, according to our limited experience, not only by the degree of resistance but also by the often large discrepancies in the resistance. On one occasion when a patient complained of epiphora, and a first investigation rather pointed to a defective "pump mechanism" than a higher resistance, the pressure was repeatedly found to be higher during following measurements; and even an apparently patent canal was found to be impermeable on a following day. This condition was not observed in normal persons. In pathologic cases, an acute dacryocystitis was seen repeatedly to go over into a dacryostenosis, while in normal persons disadvantages due to repeated measurements could never be observed. Sonnen and Weve therefore agree with Rochat that epiphora should not hastily be ascribed to a defective pump mechanism.

Two cases, in which the lower punctum did not open into the lacrimal sac, were cured in a few days after slitting the lacrimal canal inward for less than 2 mm. In one of these cases, the pressure for the normal eye was very low so that it seemed the pressure in the other, which was still below 45, might already be pathologic. However, this higher pressure can be explained by the accumulation of secretion or by secondary mucous membrane changes, which take place in a long unused duct. At the first measurement, there is an apparent higher resistance; but if with the following measurements the pressure is found to be normal, one may consider such cases due to a fault in the mechanism. However, some cases evade satisfactory explanation.

Discussion.

H. K. de Hass observed, in contradiction to the above report, that the resistance was not measured, as resistance should be understood as a hydrodynamic magnitude. This is a consequence of fluid motion, in case the energy necessary for the maintenance of a regular current, which quantity of energy, changed into heat, is lost from the current proper. What is measured by the above method is a hydrostatic quantity which, far from being the consequence of fluid motion, can even become its cause. What is measured is the force (supposing the lacrimal canal had a narrow lumen over its entire length, entirely filled with fluid) necessary to push a meniscus out of the lower opening of the lacrimal canal. If the moist walls of this opening are close together, or if the nasal mucous membrane is dry, a high pressure will be necessary, apart from rigidity of the wall and sphincter action (first determination ; maximal pressure). With a wide or funnel shaped lower opening or with a moist nasal mucous membrane,

a low funnel height will be necessary to press out the meniscus. If the lower opening is below a fluid niveau, the capillary contrapressure is entirely removed (second determination; minimal pressure). In his publication, Rochat is mistaken in deducting 8 cm. capillary contrapressure, which he calls resistance, for during the measurements, the opening is pushed into the lacrimal canal, filled with fluid. The quantity which was measured by Rochat, Weve and Sonnen, was the capillary contrapressure at the lowest canal opening, sometimes connected with the pressure (when in the beginning not even a narrow lumen was present) necessary to press open the lumen against rigidity of the wall and sphincter action.

De Haas considered from the results that the capillary contrapressure plays a dominant role. Strictly speaking, the resistance could have been determined, if a certain quantity of fluid was pressed thru the lacrimal passage entirely filled (no air bubbles, that is different menisci) in a determined time under measured pressure.

Sonnen replied that this objection held good against the first but not against the second measurement.

Wibaut asked if it was not difficult to indicate when the current of the fluid stopped.

Van der Hoeve thought that the elasticity of the lacrimal sac was measured by the above method; this takes care of the continuance thru the lacrimal canal, for which the manometer does not teach anything.

Weve stated that the value of the results as regards the minimum resistance was not affected by de Haas' objections. Rochat told de Haas that he had never spoken of the resistance of the lacrimal canal, but of the pressure necessary to syringe fluid thru the lacrimal canal.

Retention of Artificial Eyes thru the Plastic Operation of Zeeman.

H. WEVE referred to Zeeman's communication to the Society some years before, in which he had described a method to facilitate the wearing of an artificial eye when the conjunctival sac was small or the lower lid missing (also published in the K. M. f. A., Feb. 1911). He had had four similar cases. In two the conjunctival sac had been contracted for years, so that when the patient attempted to open the lids, a tense membrane was visible. No lower cul de sac existed, and an artificial eye had never been worn. The operation consisted of the cutting of a falx-like skin bridge, where the fornix of the lower cul de sac should be. The lower incision divided only the epidermis, while the upper penetrated to the conjunctiva. The skin bridge was turned inside and served as a fornix; it was sutured to the conjunctiva destined for the surface of the lower lid. If not enough conjunctiva was present, the surface of the wound had to be covered with Thiersch grafts. A small artificial eye, previously selected, was used as a prothesis; and the lids were temporarily sutured. For a few months in both cases, small abscesses appeared at the line of incision, retarding the cure. In future, Weve would prevent the lower lid from becoming too thick; a partial tarsus extirpation may be valuable.

DISCUSSION. Prof. Snellen often used a flap of skin of greater height, which he introduced from the cheek into the conjunctival sac. He remedied the defect in the cheek by a flap from the nose.

Roelofs also had difficulty because the lower lid became too thick. Altho the space was large enough, he could not find an artificial eye that would fit properly; so he made a cast of wax, as plaster was unsatisfactory. The eye made from this cast fitted.

Zeeman stated that the fistulisation of the lower skin wound could be prevented by making the incision not too shallow. Likewise the lower lid would not present difficulties, if the conjunctival flap were sufficiently free, and the place for the fornix were chosen accurately.

In a patient with the globe enucleated following a severe burn, Visser transplanted a flap from the temporal region inward thru an opening in the

lid. He then performed the operation of Zeeman and stretched the orbital cavity, which was still somewhat small, by means of discs. These were made by the patient himself, who worked in a brass foundry, after models of crown composition, shaped by hand and renewed weekly. After eight changes in the discs, an ordinary artificial eye could be worn.

Angiomatosis of the Retina.

On August 14, 1919, J. H. A. T. TRESLING examined a factory employe, 27 years old, at the Groningen clinic. He stated that a week previously a drop of lime water had fallen into his left eye, since which he could not see well. The eye had not been inflamed or painful. In 1916, this patient had been treated in the rhinologic clinic for an obstruction of the nose and for dizziness. The vision in both eyes was normal and the fundus was normal. Both then and at the present examination he suffered from headache over the left eye. Externally there was nothing abnormal; the pupils reacted, the media were clear. Vision equal 2/60 f. The papillary borders were somewhat hazy. Around the disc and in the macular region, there were numerous small white foci and fresh hemorrhages. The vessels on the disc were normal. At one point, two vessels, distinctly recognizable as an artery and a vein, increased gradually in circumference and began to show marked tortuosity; the enlargement and tortuosity reaching their maximum, as they disappeared in a red knot to the temporal side. This was rather sharply limited, and light red in color. The vessels could be traced inside it. Its size was double that of the disc and its shape that of an escutcheon. In the upper part of the fundus was another knot, kidney shaped and somewhat smaller and redder than the first. From the further side of both knots, small vessels emerged. Both knots were from 8 to 9 D. in size. They were without pulsations and made no pressure on the eye, tho both the vein and the artery pulsated distinctly. The visual field was contracted concentrically to 50 and 60 degrees, with an absolute central scotoma of ¾ degrees. The right eye was entirely normal.

A month later, the vascular enlargement and tortuosity had increased; the retinal foci had extended; and in the macular region, an extensive star figure had formed. The vessels below, at their entrance to the knot, were still clearly visible; and a communicatior between the vein and artery was seer in the form of a few small vessels, just as in the case of Ditroi, showing that these knots were of similar formation

In the further progress of the disease, the lateral side of the larger knot became broader, and one small arterial branch became larger and more tortuous. In this branch, which was one of those entering the knot, various dark colored, knob shaped intumescences appeared, resembling the nodi of a blade of grass. Fuchs first described such a case in 1882 as an aneurysma arteriovenosum. This diagnosis has later been contradicted. The six cases which have been examined anatomically adhere more closely to von Hippel's view than to any other. The changes result from a pathologic degeneration, a telangiectasia of the retina, originating in a malformation, which also provokes a proliferation of the other tissue elements in a greater or less degree. In its course, the circulatory disturbances produce a necrosis of the tissue of the retina, which is clinically and pathologically identical with the changes found in exudative retinitis. The final result is a complete retinal detachment, often accompanied by iridocylitis and high tension, which indicate enucleation.

On one occasion the disease was found in two members of the same family, which might indicate a familial origin. Tresling made a similar observation, as later a brother of his patient came for treatment for the same condition in the same eye. A third brother had choked discs in both eyes but no angiomata could be seen.

The Etiology of Concomitant Strabismus.

G. TEN DOESSCHATE stated that the text books referred to paralytic strabis-

mus and concomitant strabismus as two distinctly different conditions, tho cases of paralytic strabismus of long standing may on rare occasions appear to be concomitant. In contradiction to this general opinion, Prof. Snellen published as his opinion that convergent concomitant strabismus can be caused by abducens paralysis of one or both sides, paresis with consecutive increase of tonus of one or both interni muscles. Snellen did not deny that anomalies of refraction may resemble strabismus, but it is a mistake to believe that these of themselves will produce it. Seven objections to Donders' theory were enumerated. The speaker had examined many cases to see if he could verify Snellen's hypothesis.

In paralytic strabismus, the angle of deviation should not be the same, when the eye is turned in different directions. Ordinarily, double images and failure of orientation occur, and the secondary deviation is larger than the primary. In concomitant strabismus the size of the angle of deviation should be constant; double images do not occur and secondary deviations are equal.

Ten Doesschate's investigation showed that the difference between paralytic and concomitant strabismus was not very distinct and that in most cases of concomitant strabismus some qualities of paralytic strabismus were present.

He gave an account of his findings with regard to the fields of fixation in the horizontal meridian for divergent and convergent strabismus and from them concluded that compared with the normal, the field of fixation in convergent squint was somewhat enlarged toward the nasal side and constricted toward the temporal side, especially in the deviating eye; while the reverse was true for divergent squint. In examination of the normal field of fixation, the possibility of paresis could not be excluded. When the apparently normal eye turned out as far as possible, nystagmoid motions were observed, which might be caused by muscular paresis; these conditions occurred for the most part in the young, whose strabismus was of recent date. If the results of the investigation of the fields of fixation did not demonstrate that muscular paralysis was always the cause, they at least indicated the presence of paresis.

In most cases of concomitant strabismus, the primary and secondary strabismic angles, contrary to general opinion, were not alike, altho the difference is sometimes quite small. Likewise in indurated cases of paralytic strabismus, only very small differences between the two angles could be found. It, therefore, could not be deduced from the presence or absence of a difference in size between the primary and secondary strabismic angles, whether or not a given case belonged to the paralytic or concomitant type.

Snellen pointed out that the strabismic angle in concomitant strabismus was not stable for the different directions of fixation. The speaker had observed this repeatedly. It was especially distinct in small children, who had squinted for a short time only.

In some cases of squint, the strabismic angle was fairly stable for the different directions of fixation, but this did not prove that they were not cases of paralytic squint. Cases were known, which beginning as paralytic strabismus, had yet shown a stable angle of deviation. This proved that one cannot deduce from the presence or absence of stability of the strabismic angle, whether the strabismus is paralytic or concomitant.

The manner, in which patients who squint look at objects, varies greatly; and it is not possible to base on this point a sharp distinction between paralytic and concomitant strabismus. The rule, that with paralytic strabismus the patient sees double images and with concomitant strabismus single images, is not universal. The double images in strabismus of long standing may disappear. There have been patients with paralytic strabismus who never suffered from double vision. On the other hand cases of concomitant strabismus were observed, who were constantly troubled by double vision. These were,

in general, patients with good vision in each eye and a small strabismic angle. In them, the uniting of the images is mostly prevented by paralysis of an oblique muscle. During the onset of strabismus, double images are observed much oftener than is usually mentioned. This is true even in young children. The presence or absence of double images is therefore no general criterion for the differentiation between the two kinds of strabismus.

As the patient sometimes observes the two images, which are formed on the foveae, at the same time and about at their true mutual distance, the condition can be very disturbing. Also a kind of binocular vision can exist with strabismus, probably thru the displacement of the normal retinal correspondence. It is known that patients with paralytic strabismus often have difficulty because of their defective orientation. However, in concomitant strabismus also, very peculiar localization disturbances are observed. In examining these cases, not enough effort is made to discover whether these disturbances are stable in different directions of fixation. In concomitant strabismus, the speaker had examined each eye separately to determine its localization in the different parts of the field.

In another test the patient's chin was placed on a horizontal board, connected with a vertical one. This prevented him from controlling the motion of his arm. On the vertical board were lines, which the patient was to continue beneath the horizontal board. The results varied greatly. One group of patients localized well with each eye separately. They had alternating strabismus with an almost stable strabismic angle. A second group localized well with the eye usually used in fixing objects, but hesitatingly and incorrectly with the deviating eye. This occurred for the most part in unilateral strabismus with poor vision in the squinting eye. A third group were those who made almost the same error with the deviating eye over the entire field of fixation. With divergent strabismus the patient pointed too much to the nasal side and conversely. In the fourth group, there was a difficulty of localization which resembled the beginning of paralytic strabismus. Especially in the temporal half of the field of the deviating eye, the patients pointed too much toward the nasal side. In divergent strabismus, the reverse was true. In one case a patient with his left eye in the left half of the field pointed too much toward the left, and conversely in the right half of the field with the right eye (as one would expect with bilateral abducens paresis).

It could be proven that in all these cases the pointing was a true optic phenomenon. If the patient closed both eyes and touched the index finger of the examiner with his own index finger, he could always touch the finger of the examiner again, after that finger had been lowered perpendicularly. The disturbances of localization do not differ in paralytic and concomitant strabismus. That all patients with concomitant strabismus do not localize incorrectly does not disprove a paretic origin, for in paralytic strabismus good localization in both eyes may exist.

It appears from the foregoing that in many cases of concomitant strabismus, most of the peculiarities of paralytic strabismus are present. Since many cases of squint, which started with paresis, gradually display a true concomitant type, and since all possible degrees between the two forms appear; a formal division between the two should in general be given up and the cause of the one disease should be accepted as a cause of the other also.

The speaker found eleven cases of convergent to two of divergent strabismus. Fifty-four percent were hypermetropes without astigmatism. Many patients have hypermetropia when the squint develops, who later have emmetropia or myopia. There were twenty with abducens paralysis to seven with oculomotor paralysis. The speaker mentioned five points against the influence of amblyopia ex anopsia. Snellen considered poor vision of secondary importance in the development of strabismus. Amblyopia may influence the development of a primary or secondary

deviation. It depends upon whether the paralytic eye is the amblyopic or the good eye. Cases of slight paresis, where latent strabismus is present, may become manifest and there may be a tendency to loss of vision, when one eye is injured. Cases of hypermetropia with poor vision in either eye, but without squint, have been observed; and they prove that such a condition is not sufficient cause for strabismus.

Snellen's theory, therefore, explains the cases of convergent squint which Donders' theory failed to explain; they are to be considered cases of paralytic squint of long standing, accompanied by consecutive contraction of the antagonist of the paralyzed muscle. Ten Doesschate explains in the same way cases of external squint, in which other factors also may have entered, such as diminished mobility of the globe, a possible divergent position of rest and a small angle of deviation.

The few cases of sursum and deorsum strabismus have the same indications.

Discussion. Snellen said that according to his experience, convergent concomitant strabismus nearly always resulted from paresis of the abducens nerve, which was usually bilateral; and the hypermetropia could only be overcome thru the cooperation of both eyes, and in conjunction herewith the tendency for accommodation and convergence alone can influence the relative position of the eyes, according to Donders' theory.

He showed photographs to illustrate this. 1. Two new cases, one of Uhthoff's and one of his own, of bilateral total paralysis of the abducens, where neurologically no other deviation could be found. The case showed all the ear marks of concomitant strabismus, altho not the least doubt existed as to the paralytic origin. In the other eye, the strabismic angle was the same for the different directions of fixation, when fixing with either eye; and there was no double vision. 2. Photographs of unilateral abducens paresis, giving the full picture of concomitant strabismus. 3. Photographs which showed that with bilateral abducens paralysis but without hypermetropia, a marked convergent strabismus appears with fixation to the left or right; but there was no or only slight deviation in looking forward.

Van der Hoeve asked whether ten Doesschate would explain divergent strabismus thru paralysis of the interni; this is rather strange as it is always a question of a branch of the oculomotor, which is difficult to localize. Ten Doesschate accepts it but agreed that other conditions must be present.

Roelofs agreed that Donders' theory is insufficient and mentioned that Worth and Bielschowski had directed attention to underdeveloped binocular vision. The new theory, Snellen-ten Doesschate, is possible, but its probability is yet to be demonstrated. Granted that sometimes after undoubted muscular paralysis, a condition appears which altogether suggests concomitant strabismus, this is quite rare and happens a long time after the onset of paralysis. This onset is very different. The symptoms of recent abducens paralysis, even in young children, are totally different from those of a developing convergent, concomitant strabismus, with its changeable character. The speaker observed more than once a bilateral abducens paresis in adults, but every resemblance to concomitant strabismus was excluded. Also the demonstration of double images with Maddox rod was for the most part very difficult, or impossible in concomitant strabismus. It was much easier in many cases of paralysis in children, partly from hereditary lues. The restriction of abduction in convergent, concomitant strabismus cannot be taken as a proof of a paresis. These are the secondary habitual changes, which play so important a role in orthopedics.

Snellen replied that his explanation was not merely an hypothesis, but rested upon facts and data which he had observed continually in hundreds of cases of concomitant strabismus, and which were confirmed by these investigations of ten Doesschate.

Visual Disturbances with Mucocele of the Posterior Nasal Sinuses.

Van der Hoeve spoke of the rarity of mucocele of the sphenoid. Mucocele

(hydrops) is according to Hajek in rhinology an accumulation of mucous fluid free from pus in a cavity limited by bony walls, where thru closure of the opening, pressure upon and dilation of the walls occur.

Miss X., 51 years old, consulted an ophthalmologist in 1912. The vision in both eyes with correction was 7/10. On September 28, 1914, she returned with only 4/60 in the left eye and slight changes in the macula. A few days later the disc became pale. Under treatment it improved to 6/15 and the papilla became whiter. Then vision again decreased; and on January 9, 1915, the left eye was blind and the disc atrophic with complete oculomotor paresis of the left side. The right eye was also affected, vision being 6/18 on January 16, 1915. Under sublimat pills, the vision of the right increased to 6/12; L. remained blind, but the paresis improved.

In July, 1917, the vision was R. 8/10, L. 0. The left eye showed an exophthalmos of 6 mm. with an external deviation of 30 degrees. There was ptosis, all motions were restricted, and the disc was atrophic. In the right eye the fundus was normal, but there were slight peripheral lens opacities. In 1918, the patient suffered from severe headache, especially on the left side, extending into the back of the head. A soft pillow felt like a hard board. She returned in April, 1919, with pain in the left eye and diminished vision in the right, 5/10. The disc was very red, the field of vision normal, and tension 27 mm., 30 mm. Schiötz. On June 20, a relative central scotoma was found for red and green, of about one or two degrees. A diagnosis of tumor, probably in the neighborhood of the chiasm, was made.

On July 10, 1919, the patient was admitted to the hospital. Vision was R. 0, ptosis was present and exophthalmos of about 7 mm. The papilla was atrophic and the veins dark. Mobility was restricted upward, outward and inward. After incision, going in with the finger, no tumor was palpable in the orbit, and there were no pulsations. The vision R. was 5/10; the disc was very hyperemic, the veins thick and dark colored, and the arteries thin. There was pain above the left eye, radiating along the infraorbital nerve. In the nose and its cavities there was nothing abnormal. An X-ray showed a light shadow deep in the orbit, perhaps localized in the ethmoid; the sphenoid antrum seemed large, its roof not distinct, and the dorsum epiphysis strongly bent backward. Its cavity was clear. Passing the finger up to the optic foramen, a strongly prominent bony wall was felt at the inner side of the orbit, which was not thin. It was not a circumscribed tumor but suggested the bulging wall of one of the posterior cavities. A diagnosis of probable pneumatocele was made. The operation had unexpected good result: the pain disappeared; vision increased to 7/10; and after disappearance of a long continued edema of the lids, the proptosis had receded to 4 mm. The stasis in the right eye had disappeared.

A couple of months later, she began to complain again of the right eye. The disc was red again and the veins thick and dark. Vision had diminished to 5/10, Altho repeated examination did not reveal anything abnormal, the left posterior cavity was opened. As soon as the ethmoid was opened, after removal of the entire normal concha media, a greenish brown, thready, inodorous fluid appeared, 40 to 50 cm. in amount, containing mucus, some leucocytes, many cholesterin crystals and a few red blood corpuscles, but no microbes. The next day, vision had increased to 8/10; the temperature rose to 40 degrees, and sondage of the cavity evacuated most probably cerebrospinal fluid. At the last examination, November 21st, vision was R. 7/10, L. 0. The visual field was nearly normal; there was no central scotoma, and the ocular movements were good. The patient felt well.

This was a case of mucocele of the sphenoid and ethmoid of the left side, where the roof of the sphenoid and the wall between the ethmoid and sphenoid were entirely or partially absorbed so that the probe thru the sphenoid sinus reached the dura mater. It could not

be definitely determined whether the right cavities were enlarged. It is possible that both optic nerves had become affected by the distended left cavities.

Van der Hoeve gave a list of the eight cases known in the literature. It does not seem improbable that the closure of the sphenoid cavity is connected with the ossification of the walls, which is completed about the age of twelve. In seven of the nine cases, the primary symptoms appeared in the second decade. The condition belongs, therefore, to the developmental malformations. The prognosis is favorable for life but very unfavorable for the eye. In the nine cases known, nine eyes became blind. Three patients were seriously ill, and in two cases no report was made. The diagnosis is very difficult; no case was diagnosed correctly before operation. In one case it was considered an inoperable sarcoma capitis, in other cases tumor. Roentgen examination is insufficient, probably on account of the thinness of the bones. The frequency of the disease, therefore, cannot be judged.

As it has been shown that a very important affection of the nasal cavities, with serious ocular complications, may remain entirely undetected, it is wise in all cases of affection of the optic nerve without apparent cause to open the cavities, especially if proptosis is present. This is true not only for mucocele but also for empyema. H. Snellen Jr. advocated this 25 years ago.

Discussion. Waardenburg asked whether, when exophthalmos and headache were absent and there was only a central scotoma, this condition might exist; and whether the opening of the cavities could be considered a harmless intervention.

Van der Hoeve wished to remind the unwilling rhinologist of these cases of mucocele. He considered the intervention harmless. If the mucous membrane were not scraped away, the optic nerve, which sometimes crosses the cavity, could not be damaged.

De Kleijn warned against too aggressive measures: mucocele is a rare condition. The Roentgen examination can be relied upon, as the experience of recent years has taught him; if the photographs are taken in different directions and are negative, the cavities are not affected.

Van der Hoeve did not always find roentgenographs so reliable that cavity affections could be excluded with certainty, and if the mucocele was rare, inflammations of the cavities were manifold.

Testing of Dark Adaptation.

W. P. C. Zeeman and C. Otto Roelofs referred to the role which this examination had recently assumed in the clinic. It is important to discover whether this test can be made accurately or whether a certain margin must be allowed to explain the disturbances of adaptation eventually discovered. They studied the connection between disturbances of the field of vision and adaptation, because from this side difficulties could be expected. Considering the light sensibility of different retinal zones, the influence of the size of the field and the differences in sensibility in different parts of the visual field during dark adaptation are apparent.

During adaptation to strong illumination, the fovea is more sensitive than the periphery (Vaughan and Boltunow). When the eye has to be adapted to the dark during an hour, the increase in sensibility at the center can be estimated at 20, while the peripheral sensibility can be increased 5,000 to 10,000 times. On account of this irregular increase in the sensibility for light, the distribution of sensibility in the field of vision of the eye in dark adaptation is totally different from that in light adaptation. The fovea is relatively less sensitive, while the sensibility increases rapidly toward the periphery and reaches its climax at about 18 degrees from the center. This must reveal peculiar consequences, when the course of the dark adaptation is examined. In the beginning, the sensibility of the fovea is measuered; later that of the periphery. If there is a central scotoma, the greatest sensibility will be found at the periphery of the field in light adaptation, which is much

below that of the normal eye in the same circumstances. After some dark adaptation, the sensibility will increase to normal. The adaptation curve begins, therefore, with a low sensibility and rises to the old height. Apparently an increased adaptation is present.

Totally different is the curve with a constriction of the visual field. The first part of the curve does not differ much from the normal; but after dark adaptation, these same retinal parts determine the sensibility. The highest value, to which the adaptation can increase, is only at the foveal region; and that cannot be as high as in normal circumstances. This is apparently an important disturbance of adaptation, even tho the parts of the retina and optic nerve, which function, are entirely normal.

In a similar way, changes of the adaptation curve with different forms of constriction of the visual field can be deducted and verified thru experimentation. An investigation was made of the influence of different light fields, after the eye had looked for ten minutes at a strongly illuminated white sheet of paper. Then the threshold values, after one minute and every three successive minutes, were plotted. A direct relation between the size of the object, the form of the visual field, and the course of the adaptation, respectively, was found. One must be very careful in making conclusions from the course of an adaptation curve with regard to the essence of the adaptation itself.

This has a practical bearing. Lately Behr and Igersheimer stated that this investigation could give important data as regards the diagnosis of neuritis and atrophy of the optic nerve, and of cerebral complications. If their case histories were studied with knowledge of the facts found in this investigation, one would not hesitate to reject many of their conclusions as rash and mistaken. Repeatedly, one encounters observations, which are explained thru these experiments. Two illustrations were given.

DISCUSSION. Marx could not accept the supposition that fixation was so uncertain, as an investigation had shown him that even with peripheric objects, the correctness of fixation was fairly good.

Zeeman replied: To have supposed a displacement of the fixation point with these very weak sideways light foci, can very well accompany a great stability with regard to the accuracy of the fixation of the laterally situated point.

The Influence of Ultraviolet Light.

G. B. J. KEINER mentioned that Widmark in 1893 was the first to experiment with ultraviolet light; and that not many new facts had been added since Birch-Hirschfeld gave us the first results of the new staining methods. Tho they agree at many points, there are numerous contradictions. A certain capriciousness, as regards the influence of the rays on the eye, cannot be gainsaid. Nearly every successive investigator discovers a new phenomenon and only partially verifies the earlier results. Keiner referred to Hertel's experiments with the mercury cadmium lamp in 1903.

A rational ray therapy depends on the spectrographically demonstrated transmission of the rays thru the human ocular media. On account of the great variations already observed, many further observations are necessary. Ultraviolet rays have often been used therapeutically. The previous year, Therexe Chotzen and Kurnitzky treated nine patients with the Kromayer lamp, after having made experiments on rabbits. In two cases, a tenacious bulbar and denditric keratitis, following the treatment, were observed and severe pain was frequent, from which one might surmise that the spectrum of this lamp contained a rather large number of rays of small wave length. Strange to say, Chotzen and Kurnitzky considered the depigmentation of the iris, which they observed at first, harmless.

Keiner described the experiments of Widmark, Ogneff, Hess and Birch-Hirschfeld with the arc lamp, the uvio lamp of Schott and the dermo lamp of Finsen, respectively, and their microscopic findings. He, himself, made ex-

periments with the quartz lamp of Hereus, a mercury vapor lamp with a large and intensive ultraviolet spectrum which is well known. The focus of the rays, collected thru a lens of 24 D., fell in the iris plane of a rabbit's eye. The exposure lasted from five minutes to an hour and a half with a current of 2.5 to 4. amperes. Neither a blepharostat nor cocain were used. There was no appreciable heat production. A glass plate, 3 mm. thick, which transmitted the waves of 313$\mu\mu$ and higher, stopped entirely the action of the rays of shorter wave length. A current of at least 3.5 amperes is necessary to produce changes in the eye. The action of the rays also depends on the length of exposure.

The clinical picture of the eye exposed to rays was constant; the severity of the phenomena alone changed. Directly after the exposure to the rays, a defect in the epithelium of the cornea, strongly staining with fluorescein, appeared. Usually there was edema of the exposed conjunctiva and epiphora. On the next day there were marked swellings of the lids and chemosis of the conjunctiva with mucopurulent secretion. The cornea was dull, the surface looked as if small blebs were present, the pupils reacted narrowly.

In from three to five days, the normal condition was reestablished. With the decrease of the conjunctivitis, however, the corneal process usually extended; and the iris showed further symptoms of irritation. The defect in the epithelium extended over the entire rayed part and was sharply demarcated from the normal, which had not been exposed. The capacity extended in depth; and after a few days, the cornea had become opaque with a marked swelling of the diseased part. Ulcers appeared, which extended in depth and in breadth. There was deep ciliary injection. The iris was sometimes, even in twelve hours, distinctly swollen and hyperemic, but reacted well for the first two days. Its design then became cloudy and the reaction to light and atropin was very slow. The aqueous humor was by this time slightly turbid. Lens and fundus did not show changes. At the end of the first week, the corneal symptoms were clearing; vascularization was present, and the infiltration became slowly thinner. At an average of the sixth day, a distinct depigmentation in the iris, where the lamp image had fallen, became noticeable. This first began after five minutes of the rays with 3.5 to 4. amperes current. In all animals exposed to the rays for ten minutes or longer, the cornea did not clear up; a more or less opaque macula remained. An individual difference in sensitivity of the animals for the ultraviolet rays was noted.

Microscopy of the changes showed that the epithelium in the acute stage had here and there formed blebs; in other spots it was necrotic or exfoliated. The stroma was much swollen, and there was faint staining of the nuclei. An infiltration with polynuclear cells was found. Descemet's membrane and the endothelium were normal. After more severe exposure, when the stroma cell nuclei did not stain, the endothelium showed desquamation, while Descemet's membrane was still normal. Then the condition was nearly complete necrosis of the entire cornea. The aqueous humor was strongly albuminous with fibrin threads in the coagulated mass. The swollen hyperemic iris showed necrosis of its elements; cell nuclei did not stain at all or only faintly. In that region the pigmented cells began to lose their extension and shrink to round black nodules. Thus the normal, strongly pigmented margin of a darkly pigmented rabbit slowly disappeared. The posterior pigment layer had grown to the lens capsule in different places. In later stages, nearly all chromatophores became degenerated, and the iris tissue replaced by connective tissue.

In the posterior chamber, a fine fibrinous net with some leucocytes appeared, and also between the ciliary processes. However, the lens and retina in the aphakic eye remained normal.

The variations from Birch-Hirschfeld's findings must be explained thru

a difference in intensity in distinct parts of the spectra of the lamps. The rabbit's cornea begins to transmit rays at 296μμ. The lens transmits rays of 365μμ and larger; it blocks an important part of the rays which have passed the cornea. Very few of the ultraviolet rays of the Hereus lamp, therefore, reach the rabbit's retina. The rays, which produce the depigmentation of the iris, must have a wave length of 296μμ and larger. The rays between 296 and 365μμ, which are dangerous to the lens, are rather few in the lamp spectrum.

The ultraviolet spectra of three light foci were demonstrated, showing the difference in intensity in the different parts of the spectrum.

Detachment of the Retina thru Indirect Traumatism.

H. F. DUBOIS referred to a case Rochat presented at the fiftieth meeting, of detachment occurring some time after a fall on the back of the head. In the discussion, many did not agree with Rochat's belief that an indirect traumatism could produce detachment. Dubois has observed a case in which detachment was found directly following an indirect traumatism (fall on the back of the head). A boy of seventeen fell on the back of his head while playing football; and a few hours later, he noticed that the upper part of his visual field seemed covered with a curtain. An oculist diagnosed the condition as detachment. On the fifth day the boy came under Dubois' care. Vision was 2/60, fingers; and there was a detachment of the lower part of the retina but no rupture.

There is no mention in the literature of traumatisms, which do not directly touch the globe or its immediate surroundings.

DISCUSSION. Cuperus observed a few years ago a case of detachment, which was similar to that of Dubois. A railway worker, and therefore a person with normal eyes, fell hitting the back of his head on a rail. He was unconscious, and a few days later had a detachment of the retina without rupture. The eye later became blind from total detachment.

Tarsorrhaphy.

H. F. DUBOIS believes more attention should be paid to this operation, which is described everywhere but seldom practiced. In examining the statistics of the different clinics for the last twelve years, he found it mentioned a few times in those of Groningen only. He has performed the operation nine times on eight patients, and is well satisfied with it. When there is a permanent diseased condition, the cause of which cannot be removed, the aperture cannot be closed permanently; and tarsorrhaphy at one of the angles serves very well. In lagophthalmus which cannot be remedied, the shortening of the aperture between the lids will lessen the uncovered portion; and the lids will adapt themselves better to the globe so that the eye closes more successfully. The operation is preventive. It will also influence favorably a chronic inflammation of the conjunctivae, which are too much exposed to the air; and we will have a cosmetic effect. The two most important indications for this operation are paralytic ectropium from incurable facial paralysis and the exophthalmos of Graves' disease. Dubois operates under local anesthesia, following the method of Fuchs. After the operation, patients with facial paralysis can close their eyes somewhat better; the paralytic ectropium disappears almost entirely; the aperture is much smaller, the tears less and the cosmetic result good. The "staring" in Graves' disease is much less.

DISCUSSION. Faber thought prolapsis bulbi should be added to the indications for tarsorrhaphy. In a patient with Graves' disease and high myopia, who had developed prolapsis bulbi, he closed the aperture for about 1.5 cm. at the temporal side. In order to make the closure firm, he slit the upper and lower lids and sutured the separate parts together.

Heterochromia with Paralysis of the Sympathetic.

P. J. WAARDENBURG found in the literature that according to many writers, heterochromia exists with unilateral sympathetic affection. This sympa-

thetic heterochromia must be sharply distinguished from heterochromia with cataract, descemetitis and vitreous opacities (von Herrenschwand). Yet, sympathetic heterochromia does not need to be distinguished from heterochromia with other changes (Scalinci, Streiff). Sympathetic paresis seldom produces trophic disturbances of the eye (Streiff). The sympathetic influences the eye only in the first years of life (von Herrenschwand). Sympathetic heterochromia occurs very rarely in some regions, for example in Holland (Mas Soewarno).

Waardenburg has observed up to the present time seventy-three cases of uneven color of the iris; thirty-seven were of partial heterochromia, known as iris bicolor; five were unilateral melanosis, where the color difference was due to increased pigmentation of one eye. Of the other thirty-one cases of complete heterochromia, eight light colored eyes showed no other anomalies; in six others congenital anomalies were found (persistent hyaloid artery, colobomata, persistent pupillary membrane and cataract). In two tabes were present and in the other seven, sympathetic paresis. Of these seven, the descriptions follow. In them the cocain experiment was positive, and once the adrenalin experiment gave a positive result. In four, the complex symptoms of Horner were present. In three, there were narrowing of the pupil and of the palpebral fissure. In three, there were sweating and blushing on one side only; and in one case a distinct hemiatrophy of the right side was visible. One man and six women were affected; and the sympathetic effect appeared four times on the right and three times on the left side. In all cases, trophic disturbances in the iris were found; the stroma was thinned, the color paler and diminished. In the fundi, no distinct pigment or vascular changes could be noted.

The trophic disturbances are due to sympathetic paresis and may originate at any age. Sympathetic paresis, which originates at birth or in the earliest years, produces a hypoplasia of the iris stroma, especially of the anterior layer and the pigment. In severe cases, it may cause a pigment aplasia and later a dystrophy of the normal stroma and a loss of pigment. The function of all of these eyes was normal. Is it possible that the trophic disturbances may be indirectly due to loss of or diminished function of the iris? A slight bleaching of the iris can be expected in cases of oculomotor paralysis.

Waardenburg saw this twice, once in a congenital case, and once with tabes. In an addendum, reference is made to Calhoun's article on this subject.

Discussion. In 50,000 school children, Wibaut found two cases of heterochromia, one of which was sympathetic. This investigation, however, proves nothing with regard to slight cases. Zeeman recently saw a patient with extensive angiomatous changes on one side of the face and neck, enophthalmus, a small globe with strongly pigmented iris, and persistent pupillary membrane, indicating a less progressive development; resorption in the region of the anterior chamber conformed to the observations of the speaker.

ROYAL SOCIETY OF MEDICINE. SECTION ON OPHTHALMOLOGY.

June 10, 1921.

Mr. W. T. Holmes Spicer, occupying the chair.

A Speculum to Prevent Pressure on Globe.

Dr. Wallace Henry demonstrated a speculum which he had devised for the purpose of preventing a patient pressing his eyelids together after an opening had been made surgically. He said that since he started using it, at the beginning of the year, he had had no loss of vitreous. He was accustomed to leave the speculum in position until the lens extraction and the toilet was finished.

A Desk for Myopic Children.

Mr. Frank Moxon showed a desk for use with myopic children or those

who, on account of the close application of the eyes to the task in hand, were liable to become myopic. The eyes were kept at a minimum distance by means of plate glass, under which the child did his writing.

Acute Macular Disease.

Mr. R. D. Batten spoke of the desirability of a better knowledge of diseases of the macula; cases frequently occurred in which macular changes were the only evidence of disease and the cause of failure of sight, unassociated with other forms of retinitis. There was a great discrepancy between the physical signs, as shown by the ophthalmoscope, and the symptoms. Much depended, for a recognition of the physical changes in the macula, on the light. When a really efficient light was available, fine pigment changes which now escaped observation would be detected. Finer changes in the macula could be better seen by looking to one side rather than straight at the macula. The two acute cases he now showed were not unlike the family group in respect to the fundus changes; this familial group must be kept in view in investigating macular changes, otherwise the explanation of the fundus change might be missed. Familial amaurotic idiocy was allied to that which was racial in origin, and both forms might be due to the same toxin. The nature of the toxin was not yet known; in his cases causes at work included pyorrhea, suppuration of nasal sinuses, gonorrhea, influenza and other illnesses, and pregnancy.

Changes in the Fundi in Three Brothers.

Mr. McMullen's cases all had fundus changes, of different character, but having one feature in common, viz., the development of abnormal connective tissue, either on the surface of the retina or the vitreous. Of the possible causes, he favored the view that they followed intraocular hemorrhages. He regarded the cases, in fact, as atypical retinitis proliferans. These three brothers were members of a family of 13 children—9 boys, 4 girls. Three of the boys died between 2½ and 5 years of age, and of the 6 surviving boys, 4 had defective sight.

Macular Changes.

Mr. G. W. Roll's case had a circular plaque of what seemed to be organized fibrous tissue of the macula, the changes being symmetric in each eye. Sight failure had been complained of 7 years, especially during the last two years. The field of vision for white and red was practically normal, but yellow and green were scarcely perceived at all. The only history which at all pointed to traumatism was proximity to a falling bomb. The appearance was not unlike that in the Tay-Sachs cases, tho these latter were confined to infants, and to the Jewish race In one eye there was a hole thru the plaque of fibrous tissue.

Discussion. Mr. Herbert Fisher, discussing the foregoing cases, thought such a mass of organized fibrous tissue could only have been produced by some lesion, presumably toxic, of an irritative character. He did not know whether there was antecedent hemorrhage. He did not think there was a resemblance to the Tay-Sachs disease in Mr. Roll's case. He agreed with Mr. McMullen's view of the case that gentleman showed. The macula might show an extreme vulnerability to toxic causes, and in some of the cases there might be macular change having such an origin without peripheral change, tho in some there was choroidoretinitis.

Mr. R. R. Cruise mentioned a case similar to Mr. Roll's, which had been under his observation ten years. The condition began with a quiet looking edema of the macula, and went on to a state very similar to that in the present case. The sight was less than 6/60, and a similar process developed in the other eye. There was first a slight stippling of the macula, then edema, and later a pale looking area developed, and that was now quite pigmented over. If first seen now, it would give the impression of owning a hematogenous origin. He believed cicatrization had now set in. There was some likelihood of the patient being tuber-

culous; there was no more definite toxic history. He had had two similar cases in private since the war, and from them Mr. Matthews obtained the dysentery bacillus and the paratyphoid. They improved very much on treatment with vaccine.

Atrophic Iris.

Miss Mann showed an atrophic iris in a patient, the affected area being a sector which went up and out and down and in. At 3 weeks of age the child had small-pox, and blindness had existed in that eye as long as could be remembered.

Mr. J. H. Parsons, F.R.S., commented on the occasional absence of uveal pigment from the iris which was not revealed by ordinary examinations, hence it might occur more frequently than was usually supposed.

Cyst of Moll's Gland.

Mr. M. S. Mayou showed a patient with an unusually large cyst of Moll's gland.

H. DICKINSON.

THE OPHTHALMOLOGICAL SOCIETY OF NEW SOUTH WALES.

May 4, 1921.

Retinitis Pigmentosa.

DR. F. J. BLAXLAND presented C. H., age 11 years, who was first seen 13 months ago complaining of defective vision. On examination large and small patches of choroiditis (some taking the form of spider like particles) were seen following the course of the vessels and at the periphery. The discs were rather pale. Should the diagnosis be disseminated choroiditis or retinitis pigmentosa? There was no family history of retinitis pigmentosa.

The consensus of opinion was that it was retinitis pigmentosa and it was suggested that a trephining operation might possibly delay the deterioration of vision.

Interstitial Keratitis.

DR. F. J. BLAXLAND showed Miss A. H., age, 17½ years, first seen at St. Vincent's Hospital three years ago, when she had an attack of interstitial keratitis in her left eye. Tubercular and Wassermann tests were negative and the family history was good.

Two months ago she got an attack of acute interstitial keratitis in her right eye. Bordet test was negative. A large dental abscess was found under two crowned teeth but as this had not been in existence at the time of the first attack the question arose as to what was the cause of the keratitis?

Paralysis of the Inferior Rectus.

DR. F. J. BLAXLAND: C. B., age, 11 years. Four years ago he was treated by Dr. Wilson of Portland for infantile paralysis. The first symptoms were drowsiness and a dragging of the right leg while the right eye was turned upwards. There is still some paresis of the inferior rectus muscle which was more marked before the instillation of atropin.

At the time of the illness the boy was not kept in bed but was treated by a Swedish masseur by massage and exercises. For about a month he lay about and would not take any interest in anything.

Was it true infantile paralysis or may it have been a case of encephalitis lethargica?

J. J. KELLY,
Secretary.

ST. LOUIS OPHTHALMIC SOCIETY.

February 25, 1921.

DR. A. E. EWING, President.

Compensation Laws.

DR. J. W. CHARLES read a paper on the French Compensation Law. He quoted Druault, who discusses the need of an explicit, tho arbitrary standard for oculists, who may be called before industrial compensation commissions. According to French law, a workman receives for total and permanent disability, a pension equal to two-thirds of his former salary, and for partial and permanent disability only one-half of the reduction, which his salary has suffered. For example: A man earning 2400 francs yearly sustains an eye injury with ultimate vision of 1/100. With such low acuity he can no longer follow his trade. Now if this is considered total disability, he is entitled to

a yearly pension of 1600 francs; if, however, he is considered as having partial disability, he will only receive one-half the reduction his salary has suffered, or about 1200 francs.

Druault's tables are based on the following considerations: If the vision of one eye is perfect, and the other eye is lost, the value of the lost eye (in terms of partial and permanent disability) is, in case of enucleation, 33 per cent. Hence, the values of all disabilities of one eye should fall between 0 and 33 per cent.

Therefore, a total incapacity corresponds to a partial incapacity of 133 per cent instead of 100 per cent. If the expert hesitates to testify to a total incapacity, he may compute a partial incapacity between 100 and 133 per cent as follows: l.c. When visual acuity permits a figure between 100 and 116, he would give the highest figure for partial incapacity or 99 per cent, but if between 117 and 133, he may well decide upon total incapacity. For the sake of convenience, it is better to express the visual acuity in tenths for the superior acuities and in hundredths for the inferior.

Dr. John E. Flury read a collective abstract of Compensation Laws in the United States.

Discussion. Dr. E. H. Higbee: The Illinois plants of the American Car and Foundry Company follow the compensation law of that state, and use the tables recommended by Dr. Allport. Such tables are good and work out very nicely on paper. But the fact that many of these cases come before juries, means that any table that is used as a basis of compensation is usually of very little value, under these circumstances. Nevertheless, they are an absolute necessity in those cases in which settlement can be made with the injured party directly, or thru the Commission. In regard to the question of compensation; the amounts represented by Druault's chart are very much higher than anything in the United States.

Dr. Hayward Post: The question of double vision is a rather interesting phase of this subject. What disability should be permitted a man for partial paralysis of an ocular muscle, causing double vision and dizziness? I do not see how you can construct any table for such conditions, because the degree of disability varies greatly, dependent upon the type of work with which the man is occupied, and for which he is trained.

Dr. Higbee: In the rare cases in which double vision cannot be corrected the claimant is given one-half of what he would receive for total blindness in one eye.

Albuminuric Retinitis Benefited by Decapsulation of Kidneys.

Dr. A. E. Ewing presented this case. Female, age 28, entered the Hospital May 26, 1917, suffering with parenchymatous nephritis. Ophthalmoscopic examination June 18, 1917, revealed marked central albuminuric retinitis, right and left. July 6. Decapsulation of the right kidney was done, the patient being apparently comatose. Disc of left eye was found swollen greatly, and there were numerous large retinal hemorrhages in its neighborhood. Oct. 8. Three weeks after the decapsulation of the left kidney, there was swelling of each disc and each retina with marked central fatty degeneration.

Dec. 24, 1917. Neuroretinitis has about subsided. Marked retinochoroidal atrophic changes thruout each fundus, cholesterin crystals in left macula. Central vessels smaller than normal. Each disc pale, margins defined. Jan. 10, 1919. V. = R., 20/48. L., 20/75. July 1, 1919. Returned to hospital with cerebral embolism, causing paresis of left arm and leg. July 4, 1919. V. = R., 10/19. L., 10/75. Oct. 1, 1920. Entered hospital because of chronic interstitial nephritis. Has a form of speech aphasia (albumin +4). No change in either fundus. Gradually became worse. Died November 18 1920.

This case tends to confirm Edebohl's valuable suggestions with regard to operation in this class of cases At the time of the first operation, this patient was apparently beyond hope of any further help. Two days following

the first operation, the improvement began. While she never ceased to have albuminuria, she had an extension of life for three years.

Nasal Furuncle with Ocular Complications.

DR. A. E. EWING reported the following. A housewife, entered hospital January 15, 1921, suffering with a carbuncle in the ala of the left nostril. At this time there was no swelling of the eyes, but there was a bluish tumefaction about the left nostril. Temp. 102°F. She had severe headache. The temperature rose to 105°. On the 16th, there was a distinct friction rub on the left side. There was also pain and tenderness in the gall bladder region. There was swelling and redness in the left upper cheek and the eyelids and the conjunctiva were edematous. In the carbuncle, there were a number of openings, externally and within the nostril. A blood culture showed staphylococcus aureus, which was also found in the culture from the nasal carbuncle. Cultures taken from the conjunctiva were negative. Cross incisions were made in the carbuncle to secure better drainage. On the 17th the swelling about the left eye was increased. There was some swelling of the right eye. T. 105°. The condition suggested an involvement of the cavernous sinus.

Eye examination: R. Slight swelling of orbital tissues in upper nasal region. Pupil active to strong light, media clear, fundus normal. L. Marked orbital infiltration, moderate conjunctival chemosis and ecchymosis about upper outer portion of globe, lower lid moderately everted, upper lid could be raised above pupil with difficulty, pupil normal in size, feebly responsive to strong light. Ophthalmoscope showed a slight general haziness of the media, no swelling of disc or retina, no retinal hemorrhages.

As there was a strong suspicion of an orbital abscess, an incision was made thru the upper nasal portion of the orbit into the frontal sinus from which a bloody serum was evacuated. The incision was continued into the ethmoidal cells, but nothing abnormal was found. The middle turbinate was then removed and incisions made into the postethmoidal and sphenoidal cavities and then into the posterior portion of the orbit. There incisions showed nothing abnormal.

Roentgenograms of the head showed faint mottling in the region of the left antrum, left ethmoidal and left frontal sinuses. The patient died Jan. 18; the period of severe illness being four days.

CASE II. A somewhat similar case was seen May 25, 1907. This patient had a furuncle, the size of a split pea, on the left side of the nose. Before consulting a physician, the patient had picked it with a needle. The day following entrance to the hospital, a small necrotic plug was removed. After the removal of the plug, the swelling spread over the left side of the nose and rapidly involved the left eyelids and forehead. Left sided pleuropneumonia developed. Left exophthalmos and chemosis. Ophthalmoscope: Swelling of the disc and retina of each eye, more marked left. The swelling and induration of the left side of the face and of the orbit were very great. Under ether anesthesia, deep and extensive incisions were made in the indurated tissues on the left side of the nose and the center of the nose as far as the tip, in the cheek, and in the outer part of the orbit well back to the apex. No improvement from any treatment. Death, June 4, ten days after being first seen.

Dr. Mook had informed Dr. Ewing that he has seen three other cases, two of which died and one recovered. In the one that recovered, the face was swollen beyond recognition. Deep, long, free, vertical incisions were made thruout the face and the temples. In one of those that died the staphylococcus aureus was found in the blood. This experience of Dr. Mook is mentioned because the staphylococcus aureus was found in the blood of the first case mentioned above, which is fairly good proof that the disease is caused by this organism assuming a peculiarly virulent form.

DISCUSSION. Dr. E. H. Higbee had seen several cases of cellulitis following operations on the nose in which

there was terrific swelling of the lids and displacement of the eyeball.

Dr. Julius Gross had seen two cases of carbuncle involving the eyes, both of which eventually terminated in death. One of these was a carbuncle of the lower eyelid, the man having carbuncles also in other parts of the body. The carbuncle on his eyelid eventually got well, but he continued to have these lesions, and later was taken to Washington University Hospital. He died of brain involvement. The eyeballs were not involved when seen. The other patient was a man who was perhaps sixty years old; he had an extensive involvement of the back of the neck and shoulder, and great sloughing. He developed an insidious iritis, which came on with very little pain, accompanied by an exudate in the anterior chamber, resulting eventually in what might be termed panophthalmitis—with very little pain, but the media clouded and the anterior chamber filled with exudate, and the eye was lost as a visual organ. This man lived for perhaps a year.

Dr. F. E. Woodruff was called to see a baby with intense swelling of the upper lid on one eye. Examination showed some fluctuation and beginning pus formation in the upper lid. That was on Friday. On Saturday the lid had almost entirely recovered except for slight swelling, and on Tuesday the baby died of pneumonia. All that was found was the pneumococcus.

Dr. W. E. Shahan, within the last two weeks was called to see an old lady who had been complaining of trouble in the left eye for about a week. The lids, particularly the upper, were so edematous that it was possible to get only a glimpse of the cornea. She was running a temperature of 101°F. and showing symptoms of general septicemia. There was an evident chronic dacryocystitis right and left, but the chief swelling was toward the temporal rather than nasal side of the orbit. Rhinologic and x-ray examination negative. Several incisions about an inch deep in various directions above the globe failed to produce any pus. Death with symptoms of meningitis within a few days. The case was peculiar in that it exhibited the usual symptoms of cavernous sinus thrombosis with involvement of one orbit only.

Dr. Lawrence Post, two months ago saw a case of thrombosis of the cavernous sinus from which, at autopsy, the staphylococcus pyogenes aureus was recovered. The posterior ethmoids and sphenoids, before death and at autopsy, were found to be full of pus. The very great swelling and purplish color of the veins was the outstanding feature of the ophthalmoscopic picture. There was no swelling of the discs.

Dr. J. W. Charles was reminded there is a question whether the veins of the retina are always dilated. There is a communication between the ophthalmic vein and the angular vein, and there is usually a valve in that vein, which prevents much blood from escaping from the retinal veins into the angular. When that valve is not present, there may be an adequate exit for the blood in the retinal veins, in case of thrombosis of the sinus. His patient did not show great venous retinal engorgement. Postmortem showed sinus thrombosis.

Heat and Light Injury to Retina and Choroid.

Dr. A. E. Ewing. Case I. Had been operated on for cataract in the left eye in 1900 and had enjoyed practically normal vision. In 1904 the right eye was also operated on, but there was a central postoperative retinal hemorrhage by reason of which vision was always low. May 9, 1908, this patient inspected some newly completed smelting or blast furnaces, spending several hours looking at liquid metal at white heat. Two days later he complained that his vision was failing. Examination showed in L. a diffuse recent retinal hemorrhage about the size of the disc in the lower nasal portion of the macula, accompanied by slight grayish retinal edema. The vision was 20/24, four days later 20/48, and a month later 20/60, and several months later

there was a dense central retinochoroidal scar.

CASE II is that of a man 35 years of age. While repairing an engine, a 150 watt electric bulb exploded, with a great flash of white light that blinded the patient for a few seconds. Six days later he observed that vision was failing in his left eye. On the tenth day following the accident L. 20/75. Ophthalmoscope: extensive diffuse central retinal hemorrhage and two others between the disc and the macula. Altho the hemorrhages have been absorbing, the vision has gradually decreased to 8/150. R. = 20/20 —. There are a number of old retinochoroidal scars in the periphery of the right fundus. These scars were probably caused by a severe blow on the top of the head twelve years ago. There is no edema of the disc or of the nerve fibers as there probably would be with such extensive hemorrhages, were they the result of disease. They have all the appearance of being traumatic in origin.

DISCUSSION. Dr. J. F. Shoemaker, several years ago, had the opportunity of seeing a patient whose vision in one eye had been considerably affected by looking at the sun in partial eclipse, without any protection. Several months after the eclipse, while there were no fundus changes visible with the ophthalmoscope, his vision was decidedly impaired, it being about 20/40. The patient stated that it had improved considerably.

Dr. Shoemaker always had the impression that the effect in these cases was largely produced by the light on the retina, not thinking the heat could penetrate to the retina without injuring the cornea and crystalline lens. However, the experiments and studies of Verhoeff and Bell indicate this to be an erroneous view. They reported experiments made by the application, (1) of focalized sunlight upon the eyes of animals, and (2) by the use of the magnetic arc light concentrated by the single quartz lens system. They prevented heat from entering the eye by the use of a water cell in front of the eye, thus cutting out the heat rays, but allowing the light rays to enter. Exposures as long as one and one-half hours were made, and the eyes examined afterward. Apparently, the vision was very quickly restored to practically a normal condition. They also made an experiment upon a human eye that was to be enucleated, because of a cancerous condition. The vision was 20/30. In this case also, the heat rays were cut out, and the light rays produced no deleterious effect. They make this assertion: "The results of these experiments show that, even with exposures of extreme intensity and length, but insufficient to produce heat effects, it is impossible to injure the retina by light containing any or all rays capable of reaching it thru the crystalline lens." If these experiments and theories be correct, it is the heat that affects the retina and not the light.

Dr. Higbee: During the Buffalo Exposition, the chief electrician was severely burned by coming in contact with one of the electric mains. He had bilateral cataract, which developed after the injury. Both lenses were extracted. The left eye ground was normal, but the right showed what looked like a retinal proliferation.

A young fellow using an acetylen torch for welding developed blindness in both eyes. When called to see him, numerous hemorrhages were found in both retinae. This man had a pair of colored glasses on, but there was no protection from lateral rays. This man improved. Watching him for a number of years; there has been no change in his lenses.

A patient had a scotoma outlined in a perfect half circle of the sun. He was a very intelligent man, and outlined the scotoma perfectly. Dr. H. is of the opinion that light affects the retina in spite of these experiments.

Dr. J. W. Charles: With regard to Verhoeff's experiments, they may perhaps explain the cases of eclipse blindness in which the patient looked at only a very small rim of the sun; when the remainder of the sun was eclipsed, one can hardly conceive that sufficient heat could enter the eye to do damage. There must be something destructive in the quality of the light. However,

the experiments certainly show that heat also can cause damage.

Dr. W. E. Shahan said: Dr. Lawrence Post and I made some experiments on the effects of heat upon the interior of the eyes of rabbits. A contact exposure of 140°F. for one minute to the lower part of the sclera produced marked but transient edema of the retina over a circumscribed area opposite the area of scleral contact. A contact exposure of 160°F. for one minute produced very marked edema of the retina with destruction of blood vessels visible at the sharply marked border of the edematous area. The final result of such an experiment is an eye which shows no external visible evidence of injury but a marked area of retinochoroidal atrophy opposite the area heated. This demonstrates that a degree of heat producing no visible changes on the conjunctiva and sclera may penetrate these structures and produce very marked immediate and remote effects on the retina and choroid.

DR. JOHN GREEN, JR.,
Editor.

MEMPHIS SOCIETY OF OPHTHALMOLOGY AND OTO LARYNGOLOGY.

May, 10, 1921.

Bilateral Glioma of the Retina.

DR. E. C. ELLETT reported a case of bilateral glioma of the retina. The patient was a little boy, aged 1 year. As soon as he began to walk it was noticed that he would run into furniture, etc. Vision was doubtful perception of light. The examination showed yellowish red masses in the vitreous of both eyes, with the vessels of the size and distribution of the retinal vessels, on the surface of the masses. The anterior segments of the eye and the tension, were normal. There was some interference with the light in transillumination, but parts of the fields were quite bright. Family history negative. Double enucleation was advised, as no other treatment has given much encouragement, tho spontaneous recession may occur. Radium treatment was being tried.

Sympathetic Ophthalmia.

DR. ELLETT showed a section of an eye from a man who received a blow from a knot of wood 8 weeks previously. The eye was shrinking and was red and painful. Cornea small and distorted. The eye was removed on account of sympathetic irritation in the other eye, which showed itself in photophobia and a slight reduction of vision. These symptoms were relieved by the operation. The eye shows atrophy, intraocular hemorrhage, and detachment of the retina.

Cyst of the Upper Lid.

DR. ELLETT showed a section from a cyst of the upper lid, the case being exactly similar to one of which he had shown sections two or three meetings before. The appearance of the two growths was exactly similar clinically and microscopically, except that in the latter, which was from a girl 16 years old, the cyst was lined with round cells which showed well developed vessels.

Gonorrheal Ophthalmia.

DR. STANFORD presented C. J. K., a white boy 3 years old who had been cured of gonorrheal ophthalmia. Dr. Stanford first saw the patient on April 23rd after he had had a discharge from the eyes for one week. On first examination, the lids were found to be very much swollen, and creamy pus ran from the eyes on forcing them open. An ulcer about 2 mm. in diameter was seen on the inferior nasal quadrant of the left cornea. A smear was examined by Dr. Fleming and he reported "smear shows numerous gonococci." The boy was sent to the hospital and the eyes were irrigated with boric acid solution every hour, and mercurocrome 220, 2% was instilled following the irrigation. This was continued for a week, when the treatments were given every two hours. Atropin sulphat solution ½% was instilled into the left eye three times daily.

Three or four times during the two weeks the patient was under treatment, the palpebral conjunctiva was painted

with 1% silver nitrat solution. The ulcer did not increase in size after treatment was started.

Glaucoma.

E. C. ELLETT, L. M., aged 62. Failing vision for four years. L. worse. Vision R. 1/200 L. 0. Both eyes showed atrophic and cupped nerves. The right disk shows a bunch of tortuous vessels on the nasal side. He had had a diagnosis of optic atrophy and a bad prognosis. Tension R. 50-60. L. 80, McLean. April 8th. Lagrange operation R. May 6th. Vision R. 4/200. Tension 37 Gradle. The fields before and after operation are shown.

A. W. aged 55. Some pain in eyes and failing vision about 14 months. Both nerves atrophic and cupped. Tension 45 McLean. Vision R. 20/200. Vision, fingers at 3 inches. Fields as shown.

April 6th Lagrange operation R. Corneoscleral trephine, with iridectomy in L. May 6th. Fields as shown. Tension R. 17, L. 9, (Gradle). Vision R. 20/80, with +4 cyl. ax. 180° = 20/40 -1.

Rupture of the Choroid.

DR. W. LIKELY SIMPSON presents J. S. I. with rupture of choroid. The patient was seen 4-1-21 with history of having been struck in left eye ten days previously with a base ball. The vision has been blurred. Says he has been able to see only to the temporal side in left eye.

4-1-21 Findings at the first visit were as follows:

V. R. $\frac{20}{20}$ — Fundus O. K.

V. L. $\frac{20}{100}$ — Small hemorrhage in macula and a whitish area in the center of hemorrhage area. No tear in choroid to be seen.

4-15-21 V. OS $\frac{20}{100}$ — Hemorrhagic area is now white with slight pigmentation and above the round spot at the macula is a whitish point running upward from macula region. The base of the streak is below. The retinal vessels can be seen coursing over the whitish streak.

4-28-21 V. R. $\frac{6}{200}$ — Fundus same as 4-15-21.

E. D. WATKINS
Secretary.

American Journal of Ophthalmology

Series 3, Vol. 4, No. 10 October, 1921

PUBLISHED MONTHLY BY THE OPHTHALMIC PUBLISHING COMPANY

EDITORIAL STAFF

EDWARD JACKSON, Editor,
318 Majestic Bldg., Denver, Colo.

M. URIBE-TRONCOSO,
143 W. 92nd St., New York City.

MEYER WIENER,
Carleton Bldg., St. Louis, Mo.

CLARENCE LOEB, Associate Editor,
25 E. Washington St., Chicago, Ill.

CASEY A. WOOD,
7 W. Madison St., Chicago, Ill.

HARRY V. WÜRDEMANN,
Cobb Bldg., Seattle, Washington.

Original papers, correspondence, and other scientific communications should be addressed to the Editor. Books for review may be sent to any member of the editorial staff. Reports of society proceedings should be sent to Dr. Harry S. Gradle, 22 E. Washington St., Chicago, Ill. News items should be sent to Dr. Melville Black, Metropolitan Bldg., Denver, Colo.

Proof should be corrected, and returned within forty-eight hours to the printers. Reprints may be obtained from the printers, Tucker-Kenworthy Co., 501 S. La Salle St., Chicago, Ill., if ordered at the time proofs are returned. But reprints to contain colored plates must be ordered when the article is accepted.

Copy of advertisements must be sent to the Manager by the fifteenth of the month preceding its appearance.

Subscriptions, applications for single copies, communications with reference to advertising or other business, should be addressed to the Manager of Subscriptions and Advertising

JEAN MATTESON, Room 1209, 7 West Madison Street, Chicago, Ill.

OVER TREATMENT.

Neglect to apply effectively standard therapeutic resources that seem indicated is so opposed to the instincts and habits of the conscientious physician, and is so severely criticized by the laity if they find or believe that it has occurred, that there is liable to arise a feeling that it is better and safer to do too much for the patient than too little; and over treatment is probably more often the cause of delayed recovery than is neglect. Certain it is that in consulting practice rather striking cases of excess of zeal in treatment are not very rare.

An important form of over treatment is the too frequent repetition of local applications. In the early use of silver nitrat for the treatment of ophthalmia neonatorum, it was quickly recognized that it was harmful to repeat the application to the everted lids too soon. After each application a certain cycle of throwing off and regeneration of the epithelium must be gone thru, before it is wise or safe to repeat the application. If the interval is too short, erosion of the membrane, thick fibrinous exudate, or pseudomembrane or hemorrhage may result. Once in twenty-four hours is quite often enough for such applications; often they will be more effective with forty-eight hour intervals.

It is probable that other topical remedies are used too frequently to secure the best results, altho the harm done is less evident. Every application to the conjunctiva, that provokes a sharp reaction, will cause a lasting harm if repeated before the reaction has run its course to approximate restoration of normal nutritive balances. Even milder remedies may be too often applied. In some persons the application of the usual ointment of yellow oxid of mercury provokes a sharp reaction that has not subsided by the next morning. In such a case repetition of the application every night may evidently aggravate the patient's trouble. Yet repeating it once in two days, or twice a week may bring rapid improvement. An infant with ophthalmia neonatorum may have its sleep broken, and be decidedly the

worse therefore, thru cleansing its eye at too short intervals, before the secretion has reaccumulated so as to require removal.

In general there is an optimum of frequency in treatments that will secure the best results. Any departure from it impairs the result, and the departure in one direction is as bad as in the other. There is opportunity for as much exercise of judgment in the frequency of repetition of local applications as in the selection of the substances to be used, or the best strength of solution to be applied.

The mistake of over treatment is often due to a desire to hasten the cure. It is not always recognized that time is an essential element in all healing processes; that the recovery will be less perfect if it is hastened; and if treated too much, the condition will be aggravated rather than improved. The desire to hasten the process of repair often arises, when in the natural course of healing the change becomes gradually less rapid from day to day, and it is thought that something may be found that will shorten the period of recovery, and allow the eye to be brought into use sooner.

Serious harm may be done by keeping up active treatment, after the need for it has passed and the lapse of sufficient time is all that is needed to complete the cure. Under vigorous measures an acute inflammation is brought to a crisis and begins rapidly to subside. It seems natural to suppose that under their continuance the eye should be well in a few days; but its further progress is unsatisfactory, and the substitution of something else equally active also gives unsatisfactory results. Here a suspension of treatment or a continuance of only the mildest measures is all that is needed to bring renewed improvement and the earliest cure that is possible for the condition. This undue continuance of treatment is often practiced with reference to the protective bandage, or the exclusion of light.

It must be recognized that certain conditions will get well only slowly and will only be made worse by attempts to hurry them. This is particularly true of neuropathic inflammations, such as the corneal complications of herpes zoster, or those following small pox. It may seem like neglect to resort only to the mildest measures or await a return to health while doing nothing or using only placeboes; but this may be the best management of the case possible, and the natural impatience of the patient must not be suffered to make things worse.

Persistence in the use of certain drugs may be harmful, altho their first effect has been very beneficial. It happens that in a good many cases the prolonged use of atropin, or other cycloplegics, sets up a chronic condition of the lids that keeps the eye sore, red and oversensitive to light, altho the uveal inflammation for which the drug is used has subsided. A very few patients show an idiosyncrasy to atropin that prevents its use for even a short time; but a much larger number are liable to develop an atropin conjunctivitis, thru its prolonged use, that gives the impression that the inflammation of the cornea or iris for which it was prescribed is not yielding properly to treatment. Such a conjunctivitis is likely to present enlarged follicles that may resemble those of trachoma and to be accompanied by decided photophobia.

It was pointed out soon after the introduction of dionin that too frequent application of the drug caused it to lose its beneficial influence, once in twenty-four hours is generally often enough if its use is to be continued more than a few days. There is reason to believe that the repetition of its effects, even at intervals of one or more days, over a long period may be harmful. It may even increase the corneal opacities and thickening of the conjunctiva that the drug was expected to remove; particularly if the interval between the applications is too short. There seems to be evidence in some cases that the use of dionin and atropin at the same time increases the tendency to set up an atropin conjunctivitis.

The danger of too long persistence

in local applications of silver nitrat causing staining of the tissues has been taught by the former experience with this drug. But it should be recognized that the danger of such silver staining is even greater with the newer, less irritant salts of silver. Cases of the kind have been encountered with all the newer salts that have had much use as topical applications to the conjunctiva.

The above instances illustrate the fact that any drug which can influence the vital processes strongly for good may also do harm if injudiciously applied. Familiarity with their use and with the good effects they produce only makes it more necessary to bear in mind possible damage that may be done with them, and to keep ever in mind the questions: Has this drug been used long enough? Would it be better to lengthen the interval between applications or doses?

E. J.

THE WASHINGTON CONGRESS.

The time has come when those who wish to contribute to the success of the Congress on Ophthalmology to be held in Washington next April should become members of the Congress, by sending to the Chairman of the Membership Committee, Dr. Walter R. Parker, David Whitney Building, Detroit, Michigan, their applications, each accompanied by the membership fee of ten dollars.

The number already registered, over 600, is probably larger than have joined in any preceding International Ophthalmological Congress; but in justice to American Ophthalmology it must be more than doubled.

When the International Ophthalmological Congress met in Lucerne in 1904 there were 45 Swiss ophthalmologists inscribed on its list of members. This was the support given from a country having a population of between three and four millions. To reach a like proportion there should be at least 1300 members of the Washington Congress from the United States alone.

There is everything in favor of registering now. The Committees arranging for the Congress are issuing bulletins containing important information which are sent to all who have become members. The local Committees that are to arrange for the entertainment of foreign ophthalmologists, who will visit various parts of the country, must be formed soon, to look over the local situation and see what can be done to make these visits most successful when the time comes. In the aggregate such gatherings may be quite as important as the general Congress at Washington.

For instance Prof. Barraquer of Barcelona desires to demonstrate his erisiphake and suction operation for the extraction of cataract; and it is desirable to afford him opportunity to do this in all the American cities he can visit. To some extent the arrangements for demonstrations of this kind will have to be made just before they are held. But this and the giving of such demonstrations will be comparatively simple, if the necessary committees have been organized previously, have looked over the local conditions, have laid their plans, and have arranged to notify all members of the Congress of the time and place for such demonstrations.

Many foreign members of such a Congress will be as much interested in seeing America as in attending scientific sessions. Ophthalmologists in portions of the country, where there are no universities to show, and clinics would be out of the question, can come in close personal contact with men whose names are famous in the literature of ophthalmology, while playing the part of hosts to guests who will be delighted to see famous natural curiosities, or the wonders of great industrial operations. To provide for the satisfactory care of such guests requires previous organization, so that when the visitor's desire is known, the Central Committee can at once put him in touch with some one who will guide him to the best fishing or thru the grandest mountain scenery or the largest automobile factory, as he may prefer.

Organization requires time, and all needful details should be worked out and in smooth running order before the date of the Congress is reached. The finding out of who will help in this work is the first step, and those who desire to join the Congress should do so immediately. It would be gratifying to the Editor to learn that in the coming month at least one-half the American subscribers for this journal had become members of the Congress.

E. J.

BOOK NOTICES.

Pathologie Oculaire, Histo-Pathologie de l'Oeil et des Annexes. V. Morax, Ophthalmologiste de l'Hôpital Lariboisière. Paper, 450 pages, 4 colored plates and 204 figures in the text. Paris, Felix Alcan, 1921.

This book was written at the solicitation of Prof. Cornil to form part of the fifth and last volume of Cornil and Ranvier's Manual of Pathologic Histology. The war has prevented the appearance of the complete volume, but permission has been obtained to publish this part in this form. The introduction mentions the collaborative assistance rendered by Madame Druault-Toufesco and Drs. Magitot, Landrieu and Darrieux. The illustrations are from specimens secured in the service of the Lariboisière hospital.

The first chapter, of 14 pages, is devoted to bacteriologic and histopathologic technic. It tells of the examination of external exudates and intraocular fluids, and then of the tissues. Under the latter are included examination of fresh tissue, fixation of tissue, washing, dehydration, inclusion for section and staining. This chapter gives a condensed but clear account of the best practical methods of preparing material for examination and preservation.

The bulk of the work is divided into chapters, each taking up the normal and pathologic conditions found in a particular part in this order, lids, lacrimal apparatus, conjunctiva, cornea and sclera, iris, ciliary body, choroid, retina, optic nerve, crystalline lens, vitreous, affections of the eyeball and the orbit.

The manner in which each chapter deals with its subject may be illustrated by that on the cornea and sclera. First there is an account of the normal histology and development followed by notice of the congenital defects. Then the traumatic lesions and burns are described. The various lesions due to infections are discussed; and phlyctenular keratitis, rodent ulcer, filamentous keratitis, nodular opacities, arcus senilis, keratoconus, anterior staphyloma, ring opacity and tumors of the cornea are considered. The scleral lesions are considered under the headings congenital, traumatic, inflammatory and nontraumatic ectasias. The chapter on affections of the eyeball takes up glaucoma, atrophy of the eyeball, phthisis bulbi, myopia and hyperopia.

The illustrations are chiefly lithographs, with lettering printed on them to indicate the particular points of interest, and full explanatory legends. The colored plates illustrate the various organisms infecting the eye, the eosinophiles as seen in vernal conjunctivitis and the appearances found in siderosis. The examination of lithographs and colored plates would be a poor substitute for actual acquaintance with microscopic specimens; but such illustrations go far in supplementing the descriptions given in the text.

A most valuable feature for the student is a bibliography of 37 pages, giving the title and place of publication of each book or important paper on the pathology of the eye. These are carefully classified and arranged under structures affected and forms of disease. Thus under the eyelids we have: lesions of the margins, inflammation, chalazion, blepharochalasis, hyalin degeneration and new growths.

Probably few ophthalmologists in active practice will wish to dispense with the assistance of the laboratory man and his technician. But a proper understanding of histology, normal and pathologic, is the only sound basis for a knowledge of diseases; and there is much in ocular pathology that the general pathologist cannot appreciate.

While not the ideal, a good book knowledge of pathology is better than none; and this book by Morax is certainly one of the best, as well as the latest work on the subject.

Chirurgie de l'Oeil et des Annexes, F. Terrien, professor agrégè a la Faculté de Médecine de Paris, Ophthalmologiste de l'Hôpital Beaujon. Second edition entirely revised. 620 pages, 495 figures. Paris, Masson et Cie, Editeurs.

This complete treatise on the surgery of the eye, is very welcome. It is an individualistic work and, tho very extensive, does not pretend to describe all the modifications of the various operations, but only those which have been in use and well tried out by the author. Thus it makes a conservative guide to ophthalmic surgical practice.

The first edition of this work was published in 1902, being the resumè of the instruction given by Professors Panas and de Lapersonne, at the ophthalmological clinic of the Hotel Dieu. In the present book the author has made a surgical treatise; which is clear and illustrated by many pictures in the text, which show the details of the different steps of the operations.

The indications for operation and the technic are completely and clearly described. Many new procedures have arisen in the last 20 years, such as the sclerectomy of Lagrange and the trephining of Elliot; which render less evil our prognosis of glaucoma. The technic of the operation for cataract is now much more precise. Suture of the cornea diminishes the danger of complications and makes certain the final result. By these the operation of extraction of cataract in the capsule, is rendered a safe procedure. However, the author warns the novice against the expression operation a la Henry Smith and comments unfavorably upon that of Barraquer. He says that extraction in the capsule is the operation of to-morrow. It now presents certain complications, and cannot now be recommended as a routine procedure. The use of the capsular forceps, by which a large piece of the anterior capsule is extracted, makes secondary cataract less likely. The conjunctival flap prevents infections. Operations for ptosis, those on the ocular muscles, in the orbit and the extraction of intraocular foreign bodies, have now been perfected.

He has adhered closely to the plan of the first edition in giving the novelties the notice which they warrant; but has excluded descriptions of other common operations, when the procedures practiced and described by him are more simple and practical. Those which are not often employed are mentioned in small type.

The division of the text is regulated by the anatomy. After studying the surgical anatomy, the debutant is counselled to commence the reading of the work by the section of cataract. This is the most delicate of all operations and its details show the position of the operator and his assistant, the handling of the instruments, the fixation of the eye, the technic, precautions, etc., which apply as well to other operations. Before operating upon the living person, he counsels the beginner to perform the operation upon the pig's eye or, better yet, upon the cadaver.

Surgery of the eye is, at times, very precise and delicate. The emotions of the beginner, not to be gotten over for a long time, often augment the difficulties. It is only by practice the pupil acquires surgical nerve and a steady hand.

The contents begin with the preoperative technic and the surgical anatomy, the latter but briefly described. Contact, infiltration and regional anesthesia are fully given. The author rarely resorts to inhalation anesthesia for any operation. He then goes on with operations on the cornea, sclera, iris, cataract and its complications, prophylaxis, varieties, operations on the globe, operations on the annexes, the muscles, conjunctiva, lacrimal apparatus, the orbit and lids. He discusses lumbar puncture in ocular affections and visual troubles produced by tumor of the hypophysis.

As received the book is bound in pa-

per; type and illustrations are good; and it is not only recommended as a resumè of French practice, but is cosmopolitan in its scope.

H. V. W.

Microscopy of the Living Eye. Leonard Koeppe, Halle a. S. Volume I: **The Microscopy of the Anterior Segment of the Living Eye in Natural Light.** 310 pages, 62 partly colored illustrations, portrait of Professor A. Gullstrand. Berlin, Julius Springer, 1920.

With the construction of the slit lamp of Gullstrand, an entirely new and important method of examining the eye has been inaugurated. Foremost of all, Köppe elaborated it systematically by his painstaking investigations of the normal and pathologic anatomy of the living eye. Based on the results of his studies within the last six years, this work represents a complete theoretic and practical treatise of the intravital microscopy of the eye.

In ophthalmologic optic section, the construction of the Nernst slit lamp and its theoretic optics for the observation of the anterior segment of the eyeball, the general histologic examination of it with the slit lamp in focal light, and the methods of examining the sinus of the anterior chamber are discussed.

The special part deals with the microscopy of the living conjunctiva, cornea, aqueous, iris and sinus. Here the value and superiority of the microscopy of the living eye is clearly emphasized in many instances in which it allowed of early diagnosis of pathologic conditions, which could not be recognized by the ordinary methods; for example, beginning iritis, glaucoma, etc.

This valuable work will be greatly welcomed as a reliable guide in the introduction to this novel and important field of clinical methods. The external appearance of the book and the numerous illustrations are of superior quality. A second volume will describe the apparatus, technic and histology of the intravital posterior segment of the globe.

C. Z.

Diseases of the Eye. George E. de Schweinitz, M.D., L.L.D. Prof. of Ophthalmology in the University of Pennsylvania. Ninth edition, 832 pages, 415 illustrations, and 7 colored plates. W. B. Saunders Co., Philadelphia.

This text book of ophthalmology, which is intended for students and practitioners, needs no introduction. The fact that it has passed thru eight previous editions, speaks for its popularity and value.

The arrangement is much the same as that of the last edition, with the exception of the sections devoted to Visual Field Examination, Glaucoma, Sympathetic Ophthalmia, and Blepharoplasty, which are rearranged and added to. The number of footnote references to important articles, has been increased and a number of new illustrations have been added.

Reference to the following subjects appears for the first time: Jennings' Self-Recording Test for Color Blindness and Nagel's Card Test; Ophthalmoscopy with Red-Free Light; Measurement of Accommodation by Skiascopy; Electric Desiccation in the Treatment of Lid-Carcinomas and Epibulbar Growths; Unusual Forms of Conjunctivitis; Poisonous Gas Conjunctivitis; Striate Clearing of Corneal Opacities; Trypanosome Keratitis; Superficial Linear Keratitis; Keratitis Pustuliformis Profunda; Primary, Progressive Calcareous Degeneration of the Cornea; Anterior Lenticonus; Cysticercus of the Vitreous (previously only mentioned); Localization and Organization of the Cortical Centers of Vision, according to Holmes and Lister; Contusion and Concussion of the Eyeball in Warfare; Epidermic Grafts for the Correction of Ectropion (Epithelial Overlay); Free Dermic (Whole-Skin) Grafts for the Correction of Ectropion (previously only briefly recorded); Epithelial Outlay for the Correction of Ectropion (Gillies' Operation); Esser's Epithelial Inlay; Maxwell's Operation for Contracted Socket; Conjunctivoplasty; Modified Brossage, Simple Excision of the Retrotarsal Folds (Heisrath's Operation) in the

Treatment of Trachoma; Trephining the Sclera for Detachment of the Retina; Sclerotomy combined with Electrolytic Punctures for Detachment of the Retina (Verhoeff's Operation); Resection of the Sclera for Detachment of the Retina (Mueller's Method); Cartilage Implantation after Enucleation of the Eyeball; Mosher's Operation for Dacryocystitis.

W. C. F.

The Eye Ground in General Diseases. Prof. H. Koellner, Würzburg. 185 pages. 47 illustrations, mostly colored. Berlin, Julius Springer, 1920. (See also v. 3, p. 777.)

This very well written compendium is intended to give to the practitioner a quick orientation of a subject which in the special ophthalmologic handbooks is treated too exhaustively for the purpose. Especial stress is laid not only on the interpretation and differential diagnosis of the ophthalmoscopic images, but also mainly for their value in the diagnosis and prognosis of general affections.

After a technical introduction on ophthalmoscopy, anatomy and the normal fundus, a general pathology of the fundus is given; setting forth how atrophy, degeneration, inflammation, and disturbances of circulation of the choroid, retina and optic nerve, appear in the ophthalmoscopic picture.

In the special part, the typical ophthalmic changes in the different general diseases are presented with excellent colored pictures, based on the author's own large experience of the fundus in eye clinics and in the abundant material of the Moabit Hospital in Berlin. To mention only a few, the chapters on arteriosclerosis, optic neuritis, papillitis, intracranial pressure and tuberculosis especially display how well the author has succeeded in performing his task.

C. Z.

Squint, Its Causes, Pathology and Treatment. Claude Worth, London. 5th edition. 242 pages. Philadelphia, P. Blakiston's Son & Co., 1921. $3.50.

This new edition of Worth's excellent book does not differ much in scope from its predecessors, aside from some improvements; and the original classification in twelve chapters, on Binocular Vision, Convergent and Divergent Squint, Etiology, Amblyopia Congenital and Acquired, Treatment, Heterophoria, Operations, etc., has been retained.

Operation is required in the majority of neglected or inefficiently treated cases, very rarely in those in which efficient treatment is carried out from the start. The author arranges his operative cases in three groups. The last, since 1905, consists exclusively of simple advancements. Worth's advancement operation, which is described in detail, admits of accurate adjustment; and the results have proved to be permanent.

Paper and print in this book are very good.

C. Z.

Der Lehrbuch der Augenheilkunde. Prof. Dr. **Ernest Fuchs.** Thirteenth edition, revised by Dr. **Maximilian Salzmann,** Professor of Ophthalmology in the University of Graz. Octavo, paper, 1057 pages, 359 illustrations. Leipsic and Vienna. Franz Deuticke, 1921.

To have written a leading textbook of ophthalmology, that for 32 years has maintained its place in the literature of the world is a great service to the medical profession and to mankind. It gives a valid claim to the respect of all who have been helped by it. Such is the achievement of Prof. Fuchs, who now can leave to others the task of keeping the work abreast of the demands of the time, by introducing into new editions some account of the rapidly succeeding advances in ophthalmic science and art.

So well known is this work to American and other English readers thru the editions translated and edited by Duane, that a comparison with it of the present German edition is the most effective way of reviewing it for readers of this Journal. It must be admitted that such a comparison is most favorable to the sixth American edition, published in 1919.

The arrangement of the two works is slightly different. Both start with the general physiology, pathology and

therapeutics of the eye, followed by Part II on objective examination and functional testing. In the German edition Part III, Diseases of the Eye, first takes up the "protective organs," the lids, conjunctiva, and lacrimal apparatus, and follows with the cornea, sclera and uveal tract. While the American edition begins with the conjunctiva, cornea, sclera, and with the anatomy of the uveal tract combines an account of the development of the eye. In the Salzmann edition, glaucoma follows diseases of the lens and vitreous and wounds of the eyeball. In the Duane edition glaucoma precedes these; and after vitreous the latter takes up the retina and optic nerve, which Salzmann places immediately after the uveal tract. There are other differences of arrangement that add to the difficulty of making minute comparisons.

It is in regard to disorders of motility and anomalies of refraction and accommodation that the differences between the two books are most striking. It is in the chapters regarding these that Duane made the largest number of important additions to the original work of Prof. Fuchs; and with regard to them there has been the greatest development of practical detail in the last 30 years. Duane's additions and these practical developments have been ignored in the German edition. The brief accounts of tenotomy and advancement operations stand as they might have been written 35 years ago. Transplantation (lateral displacement) of muscle insertions is unmentioned altho for paralysis of the superior oblique it was published in 1903, and for paralysis of the external rectus in 1908. The latter, too, was reported by Hummelsheim to the Heidelberg Congress.

It is not surprising to find no mention of blastomycosis, for there is very little about it in the German literature, and only one German textbook makes even the barest mention of it; while each of the larger American works gives a fair account of it, to which its liability to cause blindness or great deformity of the lids entitles it. But it is rather surprising to find so inadequate an account of ocular tuberculosis from 10 to 20 years after the publication of the work of Stock, Axenfeld, von Hippel and others. In this edition, of Fuchs' broadly inclusive work, there is exhibited a tendency to narrowness and chauvinism that is at variance with its original character, and contrasts strongly with the development of the successive editions prepared by Duane.

The clear simple statements make this book excellent reading for those who read German. Its paper, typography and illustrations are of superior quality. We can only wish that it reflected more of the development of ophthalmology that has occurred in the last third of a century.

E. J.

CORRESPONDENCE.

Cataract Extraction.

To the Editor: Thru the kindness of the Rockefeller Foundation I have received THE AMERICAN JOURNAL OF OPHTHALMOLOGY, in which I read with great interest the communications on the subject of operations for cataract. Allow me briefly to describe the method I follow.

During the past 17 years, in which I have directed the Royal Hungarian University Eye Hospital, No. 1, at Budapest, we have performed altogether 7797 cataract operations. Of these 5400 fell to me and 2397 to my assistants, acting for the most part under my supervision.

We attach great importance to the sterilizing of the conjunctiva. This we accomplish by dropping in the eye a 10% argyrol solution, and washing with a solution of 1-10,000 oxcyanid of mercury. We use 1% optochin only in cases in which bacteriologic examination of the conjunctiva shows the presence of pneumococci.

The technic of the operation is as follows: We use the Snowden speculum. Some time ago Professor Ladislaus Blaskovics recommended a very practical speculum, the principle of which is the use of four supports resting on the adjoining bony structures, thereby obviat-

ing the possibility of pressing the eyeball. In fixing the eyeball we use the Weber forceps, provided with the Noyes lock, which, being bent, is not in the way. The fixing of the eye is entrusted to the assistant. To fix the eyeball of a restless patient the following method, recommended by Professor Blaskovics as a modification of Angelucci's idea, has rendered excellent service. The conjunctiva is cut and a thread is inserted into the superior rectus tendon.

Using a Graefe knife, we make the incision into the limbus, and a rather large flap wound, two or three lines deep, at the upper third of the cornea, and a large flap of the conjunctiva. It is better to make the incision a little too large than too small. The only drawback to the large wound is the resultant greater astigmatism. We cut the iris using the Liebreich forceps and the de Wecker scissors forceps. I have given up the round pupil extraction, since even the excision proposed by Hess, and the incision recommended by Elschnig, do not quite ensure against prolapse of the iris. In every case for years I have performed an iridectomy. We use the Schulek capsulotome, which has proved to be the best of all we have tried thus far. The expulsion of the lens is performed with the Daviel spoon. Extraction within the capsule is done in from 10 to 20% of the cases.

One of the most important complications of the operation is vitreous prolapse. The percentage of this complication in our operations has been between 2.5 and 3; tho this includes the operations of beginners and also conjunctival flap extractions. The explanation of this comparatively low percentage lies in the fact that one of the fundamental principles of operative technic is to avoid any secondary membrane. If the vitreous humor appears before expulsion, we remove the cataract with the Graefe spoon.

Being loyal to the Arlt school, we are ambidextrous, i.e., we use the knife on the right eye with the left hand, which is not difficult after a little practice. We attach special importance to holding the instruments lightly, at a distance from the blade, supporting our hands by means of the little finger.

In the after treatment, there are two dangers to be guarded against. The one is postoperative infection, which not always, but in aggravated cases destroys the sight. If we reckon all the operations performed, the total number of postoperative inflammations is about 2.5%, and of complete failures about 1%. Our endeavor to avoid infection has been fairly successful; altho in 17 years, besides myself, twenty of my assistants have operated for cataract; and naturally some of them were beginners.

The other drawback of the after treatment is our constant struggle to obviate reopening of the wound, which occurs in about 8% of cases. This is a very large proportion; and as the percentage has not varied for many years, in spite of the use of different kinds of bandages, we may justly conclude that lack of discipline in the patients is largely responsible for it. In the past few years Professor Blaskovics recommended the covering of wounds with the Kuhnt conjunctival flap. Krückmann proposed the same method, which gives hope of obviating their opening. However, I have not yet had sufficient personal experience of this method to judge of its value.

Yours very sincerely,

PROF. EMILE DE GROSZ, M.D.

Budapest, Hungary.

Visual Conservation and An International Congress of Ophthalmology.

To the Editor: About forty years ago an English physician, Dr. M. Roth, realizing that a large amount of blindness and acquired visual defects were preventable, gathered a few of his friends together and formed a Society for the Prevention of Blindness. These gentlemen themselves contributed the funds necessary for the printing and distribution of explanatory and propaganda material; and during the five years following 1880 about one hundred thousand pamphlets, leaflets, reports, etc., were spread thruout England and the continent, some of them even reaching America.

At that time, so much interest had been aroused in this valuable work and it seemed to have such large possibilities for good that the Society offered a

prize for the best essay on the "Causes and Prevention of Blindness." The consideration of this subject was first taken up at the Third International Congress of Hygiene held at Turin, and the announcement of the prize offered was made at the Fourth International Congress of Hygiene held at Geneva in 1884. The conditions required of those entering into competition for this prize were carefully determined at this Congress. They were as follows. The essays might be written in English, French, German or Italian.

The subjects to be considered came under two general heads. First: The Causes of Blindness. a. Influences of heredity, diseases of patients, consanguineous marriages, etc. b. Eye diseases of infancy, various inflammations. c. School period—progressive myopia, etc. d. General diseases, diatheses, fevers, poisoning, etc. e. Influence of occupation, accidents and injuries, sympathetic ophthalmia. f. Social and climatic influences, infectious eye diseases, unwholesome, overcrowded, illlighted dwelling places, etc. g. Defective or total absence of treatment of eye affections.

Second: The most approved preventive measures to be stated for each of these groups. a. Legislative measures. b. Hygienic and professional measures. c. Pedagogic measures. d. Medical and philanthropic measures.

The Jury of Award consisted of some of the men then most eminent in ophthalmology. They included H. Cohn of Breslau, Streatfield of London, Dr. Fieuzal of the Quinz-Vingts, Paris, Dr. Reymond of Turin, Snellen, Sr. of Utrecht, and Marc Dufour of Lausanne; Dr. Haltenhoff of Geneva was secretary. There were seven competing essays, four in German, two in English, and one in French. The report of the Committee was published in 1884 in French, in the Annales d'Oculistique and the successful essay was put out in book form for gratuitous distribution by the British Society for the Prevention of Blindness. It was also printed in German by J. F. Bergman of Wiesbaden and in French in Paris, in both of these places it was sold at about cost. With almost complete unanimity the prize was awarded to the then young but already distinguished physician, Dr. Ernest Fuchs, Professor of Ophthalmology at the University of Liege, Belgium.

During these same years Dr. Alvarado of Valladolid occupied much time and effort in widening interest and disseminating knowledge in Spain on the prevention of blindness from ophthalmia neonatorum. He wrote many papers on the subject and had printed at his own expense, thousands of leaflets giving advice as to the proper protective care of the eyes of new born infants. These were distributed largely thru the priests who gave them to couples whom they married. At about this time, too, Dr. L. Howe in America secured the passage in many states of a midwife law which goes by his name and which had great educational value. All of this occurred a generation ago and is an old story to those ophthalmologists who lived and practiced at that time. To those who are younger it will not be without interest.

After that time comparatively little was done in the line of ophthalmic preventive measures until the formation of the American Association for the Prevention of Blindness which was merged into the "New York State" and later into the National Committee for the Prevention of Blindness. The Society is now engaged in so large a work that it would seem that the time had arrived when its usefulness could be still further broadened. The amount of its last annual budget was thirty-five thousand dollars. Its work is well known in the United States but the great amount of valuable literature which it has accumulated could with advantage be used thruout the world. If it has done nothing else, it has conclusively demonstrated that the ophthalmologist no matter how skilled or how self sacrificing, can at best only remedy eye disasters after they have occurred. He can alone do almost nothing to prevent them. His best efforts at correction still leave so much to be desired that no one more

earnestly than he can desire that preventive efforts be undertaken.

The nations have always heretofore found science a neutral ground on which they can work together in harmony. Nothing can be more desirable than that amicable relations be again speedily restored. This can most effectively be secured by professional and other scientific men working together towards some beneficient end. During these years great progress on preventive lines has been made. We have learned that in group work only can the prevention of blindness or the conservation of sight be successfully secured. We now know that no matter how skilled the surgeon, nor how favorable the circumstance of the patient, large numbers of people lose their sight to whom it might have been preserved. In order that preventive measures may have any considerable effect a wide plan of organization is necessary.

The initiative must, of course, start with the ophthalmologist, but he must have associated with him the municipal and state departments of public health, the social visitor and the visiting nurse. He must confer with the architect who plans the schools and the work shops and the builder who constructs them. He must utilize the expert knowledge of the illuminating engineer, who will determine the character and the arrangement of the lighting employed in public buildings. He will put himself in closest touch with the factory employer and with the industrial physician in order that eye accidents may be as far as possible avoided, and that the first aid be prompt and efficient. This will at once, interest the agents of the accident insurance companies who have a financial as well as a humanitarian interest in all such preventive work.

The school physician can render great service, as well as the publisher of books for children; sight saving classes which are now exceptional will become general. In a word by organized cooperative effort we should in the course of time eliminate that one-third of those destined to be blind unless protective measures are taken, but who should never lose their sight. To effect this an organized effort should be instituted similar to that which was carried out under the auspices of the various International Congresses of Hygiene to which reference has been made. Next year the International Congress of Ophthalmology will be held in Washington. Why should not a part of the time of this Congress be devoted to the Prevention of Blindness and the Conservation of Sight?

The National Committee for the Prevention of Blindness will gladly join in such a movement and if the Congress decides to make it a part of its program, will offer a generous prize for the best essay on "The Causes and Prevention of Blindness and the Conservation of Sight." The arrangement under which it would be given could be made jointly by a Committee chosen by the President of the Congress and the President of the National Committee.

There are doubtless many able and estimable ophthalmologists who are now suffering from the consequences of the war, who would gladly at this time enter into competition for such a prize.

F. Park Lewis.

Buffalo, N. Y.

TRIFOCAL LENSES.

To the Editor: My article on "Advantages of Trifocal Lenses and Reasons Why They Should Be Worn" published in the June number of the American Journal of Ophthalmology, p. 401, was originally intended only for reading before the Staff of the Geneva City Hospital; and therefore I neglected to give credit to authorities for accepted facts found widely stated in ophthalmic literature.

I had made notes from a copy of Dr. Thorington's book, from which the table of accommodation and statements regarding accommodation were taken. It might also have been pointed out that Thorington mentions the use of trifocal lenses, 1900 edition, p. 283.

I did not intend to call attention to trifocal lenses as anything essentially

new; but to point out the technic of their manufacture which would enable them to be used successfully. To my knowledge trifocal lenses were being made, both ground on and in cemented form, 27 years ago, before I had studied medicine, the distant vision thru the top wafer, the reading vision thru the bottom, the principal lens being the intermediate. But they were not successfully adopted and worn, and my article offers a better solution of the problems involved.

Fraternally yours,

JOHN A. SPENGLER.

Geneva, N. Y.

To Improve Our Literature.

To the Editor: Permit me to make two or three suggestions looking toward improvement in the writing of medical articles, which apply equally to Ophthalmic journals. In many articles the introduction is unnecessarily long. This criticism does not hold to the same extent as formerly. The medical journal is not the place for anything but the briefest prefatory remarks.

When an author is quoted his initials and place of residence should be given with his surname. Not to do this is unfair except in cases where reference is made to men of marked eminence. For example: Dr. H. J. Campbell of Buffalo publishes something and subsequently a writer refers to it giving credit to "Campbell." His colleagues in his own city might not connect the name with the individual. Were credit given to H. J. Campbell of Buffalo he would be definitely placed.

The name of the physician referring the patient to the man who reports the case should be omitted. There are more specific objections, but the information is certainly of no interest or value to the reader.

Occasionally one reads,—"and this condition continues to the present." "To the present" is too indefinite. One has not time to ascertain when the article was written.

Most important of all. In case reports nearly always events of interest are indicated by dates. It would be better if periods of time between such events were given. Let me illustrate from the first report I find, "On Sept. 22nd I first saw her (here follows a description of the case). On Sept. 26th there was ordered for her etc. etc. On Dec. 3rd the condition was much worse and the eye came to operation." Most case reports have many such dates but this will do for an example.

In the above if Sept. 26th and Dec. 3rd have any interest for us it is only in that they indicate periods of time from the beginning of the illness. Reading is made rough and the continuity of thought is broken when we stop to compute that it was two and a half months before the operation was performed. Surely this must have occurred to many readers and yet I have seen no suggestion for betterment. It is just as easy for an author to write "four days later," "three and a half months after the first visit," or "twenty days following the operation," etc.

There is so much read!

Very truly yours,

H. W. COWPER.

Buffalo, N. Y.

CERTIFICATES IN OPHTHALMOLOGY.

At its meeting in Boston in June, The American Board for Ophthalmic Examinations granted its certificate to the following applicants:

Barkan, Hans.....San Francisco, Cal.
Bruns, Henry Dickson, New Orleans, La.
Carpenter, Ernest W. Greenville, S. C.
Carvill, Lizzie Maud ..Boston, Mass.
Chapman, Vernon A. Milwaukee, Wis.
Clapp, Clyde Alvin ..Baltimore, Md.
Curdy, Robert James Kansas City, Mo.
Downey, Jesse Wright, Jr. Baltimore, Md.
Duckworth, Guilford M. Cuero, Texas.
Ellis, Edward K. .....Boston, Mass.
Ewing, Arthur E. ....St. Louis, Mo.
Fulton, John Farquhar, St. Paul, Minn.
Gifford, Sanford R. ....Omaha, Nebr.
Goldstein, Isadore ..New York City, N. Y.
Grosvenor, Lorenze Nelson.. Huron, S. D.

Harbridge, Delamere F. ....Phoenix, Ariz.
Hatch, Ralph A. .....Boston, Mass.
Higbee, Edward Henry St. Louis, Mo.
Holloway, Thomas B. Philadelphia, Pa.
Holzer, William F. ..Worcester, Mass.
Jack, Edwin E. .....Boston, Mass.
Jacobi, Frank .....Toledo, O.
Jennings, John Ellis ....St. Louis. Mo.
Keiper, George F. ....LaFayette, Ind.
Kimberlin, Joseph W. ..Kansas City, Mo.
Lancaster, Walter B. ..Boston, Mass.
Lewis, William W. ....St. Paul, Minn.
Lindley, Don Carlos ..New Castle, Pa.
Markel, James Clyde ..Pittsburgh, Pa.
Martin, Ancil ..... Phoenix, Ariz.
Mills, Lloyd .....Los Angeles, Cal.
Monosmith, Olney Benton...Lorain, O.
Oertel, Theodore Eugene ...Augusta, Ga.
Parker, Edward Frost ...Charleston, S. C.
Peery, Thomas Edward ....Bluefield, W. Va.
Quackenboss, Alexander .....Boston, Mass.
Raia, Vito Luigi ..Providence, R. I.
Ravdin, Marcus .....Evansville, Ind.
Robertson, Edwin Norris ..Concordia, Kans.
Robinson, John M. ....Duluth, Minn.
Slocum, George ...Ann Harbor, Mich.
Smith, Dorland ....Bridgeport, Conn.
Smith, Owen Alonzo Farmington, Mo.
Smith, Stanley .....Pittsburgh, Pa.
Snyder, Walter H. .....Toledo, O.
Spengler, John Arthur Geneva, N. Y.
Stevens, Henry B. .....Boston, Mass.
Verhoeff, Frederick H. Boston, Mass.
Wiggers, A. F. A. ....Flushing, N. Y.
Wood, Hilliard .....Nashville, Tenn.

ABSTRACTS

Wright and Patton. Myiasis of the Frontal and Ethmoid Sinuses and the Orbit. Indian Med. Gazette. Vol. LVI. p. 58. Feb. 1921.

Major Wright, I. M. S., in charge of the Govt. Ophthalmic Hospital Madras, reports a case of a Hindu, f. 30, seen with extensive destruction of the forehead and brows, including the left and part of the right orbital bony plates, by maggots. The lacrimal bones had disappeared, the ethmoid was undergoing carious destruction, and the frontal sinuses, ethmoid cells and nasal fossae were involved. The eyeballs, completely exposed, bounded the ulcer and were proptosed, the left cornea being ulcerated. About 80 maggots were removed by permanganat and turpentine washings and forceps.

The history was one of a gradual swelling of eyebrows and lids, which was incised a month previously; nasal discharge increased and an ulcer followed the incision. The maggots were only noticed three days before the case was seen.

Major Patton, I. M. S., of Connor, identified the maggots as mature larvae of *Chrysomyia bezziana* (Villeneuve). This fly is the specific myiasis producing Calliphorine of India, only depositing its eggs in the diseased tistues of man and animals. Patton says "This case is of peculiar interest, for it is clear that the eggs were laid directly on the ulcerated surface and not in the nose, altho the patient had a purulent discharge from the nostrils for some time. A nasal discharge often attracts the female to oviposit just inside the nostrils, and the larvae penetrate into the various sinuses connected with the nose.

Further it should be noted that, tho the larvae must have been very near the brain tissue, they did not enter the skull. And this emphasises the fact that the larvae of *bezziana* do not penetrate bone or cartilage, and that when these structures are destroyed, it does not mean that they have actually eaten their way thru them. Their destruction can only be brought about by dissolution thru the action of bacterial ferments. All muscid larvae only feed on fluid food, the substances or tissues on which they are feeding being dissolved by salivary and bacterial ferments." F. P. MAYNARD.

Van Duyse, D. Removal of Cataract by Suction. Le Scalpel, Feb. 19, 1921, No. 8.

After having shown the advantages of the phacoerisis of Prof. Barraquer, van Duyse gave the history of suction of cataract. In Mesopotamia in the year 1000, a cataract was first removed by suction by Amar. He introduced a hollow flattened needle into the anterior chamber, and an assistant drew out the cataract. In the eleventh century, the Arabs, also, used the suction method. This was possible because in the orient cataracts develop at an earlier age than in our climate, and are often soft or partly soft. The suction method was then lost sight of. Guy de Chauliac mentions it in the fifteenth century. It was reintroduced on the continent in the nineteenth century by Blanchet, who practiced it at Paris in 1846 for soft cataracts.

M. Danis.

Malling, Birger. Eye Symptoms in Encephalitis Lethargica. Norsk Magazin for Laegevidenskaben, v. 82, p. 369.

The author states that the most distinctive symptoms of encephalitis are somnolence and paralyses of eye muscles supplied by branches of the oculomotor nerve. He discusses these paralyses under the headings of ptosis, isolated and associated paralyses, pupil phenomena, disturbances of accomodation, nystagmus, etc. The theories as to the exact relative locations of third nerve centers are gone into at some length. Sleep is said to have a center located in the gray matter surrounding the aqueduct of Sylvius: a lesion in this region could give somnolence and could also involve one or more of the third nerve centres giving ptosis, etc.

Different centers are supplied by branches of several different arteries, hence a small lesion along a blood vessel could involve one group of centers without disturbing others. Paralyses of the eye muscles are of great importance in the diagnosis of this disease. During the years 1919 and 1920, the author saw a large number of atypical eye muscle paralyses, oftentimes transient, such as disturbances of accommodation without any history of diphtheria, inequalities of the pupils without suspicion of lues, etc., and suggests that these may have been manifestations of milder forms of encephalitis and that the addition to the name of "epidemica" may not have been without justification.

D. L. T.

Nakamura and **Mukai. Influence of Intravenously Injected Medicaments on the Amount of Albumin of the Aqueous Humor.** Nippon Gank. Zasshi, January, 1920.

The authors introduced watery solutions of fluorescein-potassium, fluorescein-sodium, potassium iodid, sodium-iodide, potassium-ferrocyanide, sodium chlorid, chlorcalcium per os, subcutaneously and intravenously into the organism of the rabbit and examined the amount of albumin of the aqueous humor. (Conclusion as follows).

1. Even less poisonous solutions when injected intravenously, act in increasing the albumin, while stronger poisonous solutions per os or introduced subcutaneously produced no action.

2. By intravenous injections of hypertonic solutions the amount of albumin is markedly increased, while it is less influenced by injections of hypotonic solutions even in large quantities.

3. Intravenous injections of hypertonic chlorid of calcium solution increased amount of albumin, while subcutaneous injections lessen the amount.

Komoto.

Maucione. L. Ulcerative Gummations Lesions of the Tarsus. Arch di Ottal v. 27. p. 147.

The author mentions the previous reported cases, fifteen of which were in acquired lues and three in hereditary lues. His three cases all occurred in young adults with acquired syphilis. Infection occurred at seven, four and one year before the appearance of the lesion so that two cases corresponded in point of time to tertiary lesions, whereas the third, might be called secondary, as was borne out by the presence of a

papulopustular rash on the skin at this time. All cases had received more or less thoro treatment with mercury before they came under the author's care, but all were cured of local symptoms in from ten days to two weeks by from two to three injections of neosalvarsan. He considers that all three originated primarily in the deep tissues of the tarsus, only secondarily affecting the conjunctiva and skin. In diagnosis, the absence of swollen preauricular glands helps to distinguish the lesions from tuberculosis and their rapid growth and occurrence in young adults distinguishes them from malignancy. In comparing his treatment with that of other reported cases, it appears that neosalvarsan offers a much more rapid and complete cure than the older methods. A bibliography of twenty-four titles is appended.

S. R. G.

Pa. T. C. Bacteriologic Examinations of Smears from Conjunctiva. National Medical Journal of China, Vol. VII, No. 2, June, 1921; p. 52.

"In the total number of 1004 cases examined, organisms were found 497 times including 40 cases counted more than once on account of mixed infection. The Morax-Axenfeld bacillus was the most generally found, i. e., 166 times or a percentage of 33.4%. Staphylococcus was found 97 times or 19.3%, pneumococcus 95 times or 19%, Koch-Weeks bacillus 66 times or 13%, xerosis bacillus 29 times or about 6%, the streptococcus 7 times or about 1.4%, and the gonococcus 9 times or about 1.8%.

"There were 507 cases of trachoma and suspicious trachoma including those with complications. This is a percentage of 50.5% of the total number of cases. This corresponds closely to proportions of previous years. 280 of these cases or 55% showed no organisms. Organisms were found 252 times including 25 cases of mixed infection which are counted twice. The most common organism was the Morax-Axenfeld which was found 93 times or 37% of the times organisms were found. Staphylococcus was found 49 times and pneumococcus 48 or about 19% for each. Xerosis bacilli were found 13 times (about 5%) and unclassified organisms 14 times. Streptococci were found 5 times (or 2%). In only one case with trachoma was the gonococcus found and this case had a corneal ulcer which was probably caused by this organism. The almost total absence of gonococci in trachoma cases in Peking is in marked contrast with the findings in Egypt where the gonococcus is so often found as a complication of trachoma."

H. J. HOWARD.

Braunschweig, P. Hemianopic Patients Aided by Prisms. Klin. M. f. Augenh. v. 65, 1920, p. 535.

The normal binocular individual commands a visual field of 180° width, the homonymous hemianopic of only 90°. If prisms, base to the left, are placed before the eyes of a patient with left sided hemianopia, and the fixation remains the same, a portion of the paralysed left visual field (next to the median line) is displaced to the healthy sight side and perceived. As the whole extent of the visual field, of the hemianopic of 90°, cannot be changed, it becomes shortened at the extreme right and in the same width. In reality, however, nothing is lost at the extreme right end, because the covering by the prisms does not reach so far. The resulting visual field is now composed of the displaced portion of the left field and the main portion of the right field. For practical use, it is more favorably arranged, by gaining valuable central territory for a less important peripheral area. Braunschweig did not go beyond prism 8°. At 5 metres distance by prism 7° a portion of 40 cm. is gained, in reading from 3 to 4 cm. Here the new line of print is easier found. A number of patients found the prisms a relief. The demands on the ocular muscles turning the eyes towards the defective side were also lessened, and less fatigue was experienced.

C. Z.

Favauge-Bruyel, A. J. de. Monocular Vision. Doctorate Thesis. Amsterdam, 1920.

The methods for examination of monocular vision are considered and the difficulty of finding a quantitative measure of its impairment is described. It is not comprehensive to restrict the examination to one part of the depth-vision (the parallax), especially when we examine what we understand under "habituation to the monocular condition," and realize the great influence of the intelligence. A method, which starts with the simple observation of monocular and binocular vision, promises to be broader and more objective.

Prof. Zeeman has given data about the acuity and distinctness of the images and the exactness of fixation; while the writer has determined the rapidity of observation, of fixed accommodation and convergence. She also investigated the size and form under which the objects are perceived, in this following Ascher. The rapidity of perception of monocular vision was investigated and compared with that of binocular vision. At a distance of 5 meters, no difference exists; while at a distance of 25 cm., the monocular needed more time than the binocular.

Prof. Zeeman has investigated the exactness of observation with the method used by Klara Grim (von Kries). He looked for the greatest distance with the relative distance of the points remaining the same, at which no mistakes were made. This happened as well monocularly as binocularly, when the points were seen under an angular distance of 5 1/9", distance of the points 9 mm., distance of the observer from points 6 M. With Roelofs, he found that neither with light nor dark adaptation summation of stimuli exists, only the threshold value is lower binocularly than monocularly; but this is unimportant for one who has had for a long time monocular vision only. As regards the sharpness of the images, there exists no difference between the two conditions.

The estimation of size by monocular and binocular vision was investigated. Unknown objects were used, to exclude memory images. In the judgment of these unknown objects at different distances, no appreciable difference between the two was found. This is somewhat surprising, as the judgment of the size of a known object depends on the representation which we possess of it, the memory image; while the size of an unknown object depends only on the size of the visual angle and the distance. If the size of two unknown objects at different distances must be compared, it will only be possible when the distances are known, or can be estimated in some way. If the observation of distance or its representation is absent, we have two unknown quantities and we have to depend on size of the retinal image, that is the size of the visual angle. This was tried with normal binocular and monocular vision.

At 40 cm. from the eyes, a disc was placed, and at 80 cm. a row of 5 discs, different in size, from which one of the same size as the first had to be chosen. At the first determination, the disc of 12 mm. was put at 40 cm. from the eyes and 5 discs of 12, 16, 20, 24, 28 mm. at 80 cm. The patient was asked to choose from these 5 one of the same size. If a 20 mm. disc was chosen, he was asked to choose from a new row, the center of which had a diameter of 20 mm., that is from 18, 19, 20, 21, 22 mm. The experiment was done in a well lighted room during the day. The discs were looked at thru a mirror, which more easily keep the distances constant and does not prejudice as to the difference in distance. The patient may not touch the discs. Thus 40 normal persons were examined binocularly and monocularly and more than 70 with only one eye. The relative determinatin of distance with monocular vision is distinctly expressed in the valuation of the determination of size.

E. E. B.

NEWS ITEMS

Personals and items of interest should be sent to Dr. Melville Black, 424 Metropolitan Building, Denver, Colorado. They should be sent in by the 25th of the month. The following gentlemen have consented to supply the news from their respective sections: Dr. Edmond E. Blaauw, Buffalo; Dr. H. Alexander Brown, San Francisco; Dr. V. A. Chapman, Milwaukee; Dr. Robert Fagin, Memphis; Dr. M. Feingold, New Orelans; Dr. Wm. F. Hardy, St. Louis; Dr. Geo. F. Keiper, LaFayette, Indiana; Dr. Geo. H. Kress, Los Angeles; Dr. W. H. Lowell, Boston; Dr. Pacheco Luna, Guatemala City, Central America; Dr. Wm. R. Murray, Minneapolis; Dr. G. Oram Ring, Philadelphia; Dr. Chas. P. Small, Chicago; Dr. John E. Virden, New York City; Dr. John O. McReynolds, Dallas, Texas; Dr. Edward F. Parker, Charleston, S. C.; Dr. Joseph C. McCool, Portland, Oregon; Dr. Richard C. Smith, Superior, Wis.; Dr. J. W. Kimberlin, Kansas City, Mo.; Dr. G. McD. Van Poole, Honolulu. Volunteers are needed in other localities.

DEATHS.

Harry L. Arnold, Omaha, aged 51, died July 8th, 1921, from heart disease.

James Foster Means, Claremore, Okla., aged 55, died July 9th, 1921.

Clovis Adams, New York, died July 28th, 1921.

C. D. Conkey, Duluth, Minn., died recently at Los Angeles, aged 65 years.

Henry Work Dodd, an Ophthalmic Surgeon of London, died June 28, 1921.

PERSONALS.

Dr. George H. Kress of Los Angeles is spending some time in England visiting the various hospitals.

Mr. Pridgin Teale, F. R. C. S., celebrated his ninetieth birthday on June 28th last.

Dr. Otto Barkan has established offices in the Physicians Building, 516 Sutter street, San Franciso, California.

Dr. C. W. Briggs, formerly of Fargo, North Dakota, is now located in the Lyceum Building, Duluth, Minnesota.

Dr. J. A. Stuckey, Lexington, served as President of the Kentucky State Medicine Society, which met at Louisville, September 27th.

Drs. Trimble and Granger, of Emporia, Kansas, have recently formed a partnership to practice eye, ear, nose and throat work in that city.

Dr. Robert Braunlin is now associated with his brother, Dr. H. W. Braunlin, of Marion, Indiana, in the practice of ophthalmology and otolaryngology.

Dr. Leighton W. Hovis, Charlotte, S. C., has become associated with Dr. A. M. Whisnant in the practice of eye, ear, nose and throat work.

Dr. D. F. Longnecker, of Emporia, Kansas, has retired from practice after thirty-five years of active work. He was a pioneer in Kansas in the fields of ophthalmology and otolaryngology.

Dr. F. Turner Roberts, formerly of Paris, Texas, announces the removal of his offices to the New Pacific Mutual Building, 523 West Sixth street, Los Angeles, California.

Dr. George E. de Schweinitz is on his way to China to attend the installation of the new directors of the Union Medical College at Peking founded by the Rockefeller Foundation.

Dr. Frank Allport gave a luncheon at the Chicago University Club on July 15th to about thirty members of the Chicago Ophthalmological Society in honor of Dr. de Schweinitz who was passing thru the city.

Dr. Leo Steiner, who for six years was chief medical examiner of the Chicago Civil Service Commission, has been appointed Superintendent of the Illinois Charitable Eye and Ear Infirmary, to succeed Dr. Hiram Smith. Dr. Steiner was formerly instructor in the old Bennett Medical College.

Dr. James Earle, of Salt Lake City, who had charge during the war of the eye department of the American Aviation Training Section at Issondon, France, has been appointed a surgeon in the regular army, and ordered to report for duty at the government hospital at Baltimore, Maryland.

Drs. Robert C. Coffey, Charles E. Sears, Wilson Johnston, Roy A. Payne, and their associates, have organized a Clinic in the Stevens Building, Portland, Oregon. They have also coordinated the Portland Surgical Hospital and the Portland Convalescent Hospital, forming a hospital unit for the practice of group medicine and surgery.

Dr. C. D. Conkey, who has practiced Ophthalmology in Superior, Wisconsin, and the last five years in Duluth, was given a farewell banquet by the Douglas County Medical Society, because he is taking up a new residence in Los Angeles, Calif. Dr. Conkey was recently the defendant in a case for malpractice, in which the jury, after 16 minutes deliberation, acquitted him.

Dr. John O. McReynolds of Dallas, Texas, has visited Barcelona to look into the work of Prof. Barraquer. He promises us a letter as soon as he has been on the ground long enough. He has been requested by the Chief of Air Service to investigate some of the ophthalmologic problems relating to pilots among the Allied Nations, and report to the Air Service upon his return.

SOCIETIES.

At a meeting of the Council of British Ophthalmologists in July, Mr. J. B. Lawford was elected president; Sir George Berry and Mr. E. Treacher Collins, vice-presidents; Mr. J. Herbert Fisher, honorary

treasurer, and Mr. M. Stephen Mayou, honorary secretary.

At the meeting of the Chicago Ophthalmological Society some weeks ago, Col. Smith was the distinguished guest. Col. Smith has performed more cataract operations than any other man in the world. His paper was discussed by other operators of experience.

Dr. Ludwig Hektoen of Chicago read a paper upon the immune reaction of the lens, presented an array of tables and figures showing the results of his experiments with serums and antiserums prepared from lens substance. This paper brought out but little discussion, yet it is possible that it points the way to the end of cataract extraction, simply because there will be no cataracts to extract. There may be developed a serum or antiserum whereby incipient cataract will be checked early in its progress and possibly cleared up entirely.

The Colorado Congress of Ophthalmology and Oto-Laryngology was held in Denver, July 29th and 30th in the Assembly Room of the Medical Library Building. The Ophthalmological section was presided over the first morning by Dr. Harold Gifford of Omaha, and the second morning by Dr. W. H. Luedde of St. Louis. An unusually attractive program was presented and a large attendance was present throughout the session. The evening of the first day was devoted to a banquet at Troutdale-in-the-Pines, situated in the Mountain Parks district.

MISCELLANEOUS.

The Graduate School of the University of Minnesota announces a special one year course in Ophthalmology, to begin Sept. 28, 1921.

The Illinois Society for the Prevention of Blindness has recently obtained evidence of gross neglect on the part of six physicians in failing to report cases of ophthalmia neonatorum. The Society has written a communication to the Editor of the Bulletin of the Chicago Medical Society, asking cooperation in taking steps to prosecute these physicians.

Brooklyn has a unique way of caring for its blind. Once a year an entire week in the month of April, called "Blind Week" is devoted to their interests by all the women of the city. In the large ballroom of the Acadamy of Music, the work of these unfortunates is on exhibition and for sale. The various forms of handiwork taught them are here demonstrated for the edification of visitors. Orders are taken and thus these handicapped members of society are sure of remunerative work for months to come.

Hofrat Ernest Fuchs celebrated his seventieth birthday in July. On this occasion tribute was rendered by the physicians of Vienna, by the civil authorities of Vienna, and telegrams and letters from all over the world by his many grateful students and admirers. Fuchs stands too high to need any enconiums. A short address by Dimmer, his successor, will, however, be of interest because it brings again to our attention the personality and achievements of this Master of Ophthalmology. The translation is by Dr. H. Barkan.

"The Master of Ophthalmology—Ernest Fuchs, began his career as a scholar of Von Arlt. Scarcely promoted to Docent he was called to Liége, Belgium, in 1881, where he worked for four years. At the early age of thirty-four, in 1885, he was called to Vienna and took over the second eye clinic as successor to Eduard v. Jaeger. Under his leadership the material of the clinic increased so immensely, that Fuchs was put in a position to assemble the richest possible clinical experience. His scientific excellence is distinguished by great thoroness and ability for calm, critical judgment which has made him one of the leading ophthalmologists. A great number of disease processes were first discovered by Fuchs and investigated by him; and a large number of disease processes already known were first given their proper explanation by him. He is a master of normal and pathologic histology and many important works which deal with operative technic and physiology of the eye have come from his pen. His text book, which a short time ago appeared in the thirteenth edition, has had success without parallel and has been translated into languages of all civilized nations. Fuchs who of free will retired six years ago was one of the best and most successful teachers of ophthalmology. We can thank him that opthalmology has been busily engaged in by students and doctors, and that thousands of medical men remember gratefully this excellent teacher. Numerous are the prominent men whom Fuchs educated in his immediate surrounding. Three of the four ophthalmologic chairs in Vienna are filled by his scholars. Numerous were the physicians of foreign countries who, during the thirty years activity of Fuchs, worked under him and attempted to emulate his ideals and principles. They came from all the countries of the globe, and carried his fame back to their native lands.

If one wishes to judge worthily of the personality of Fuchs one must know his liberal spirit, his energetic physique and must consider especially the rich treasure of general culture which he acquired. Fuchs had visited not only all countries of Europe, but even far removed parts of the globe, America, Asia, and Africa. On one of these interesting trips he met Robert Koch in Africa and studied sleeping sickness with him. On another trip thru Asia Minor he went over the same route which had been blazed out by Xenophon. Fuchs is the master of many languages, to such a degree that he can give scientific lectures in them. In the six years in which he has been retired, he has worked with his former vigor at scientific subjects, and enriched still further the literature. He is

to-day still the man in Vienna, whose fame and work extend beyond the boundaries of our small country.

To complete a sketch of his character one must know his simple ways and his personal modesty, which has often led him to refrain from publishing some work because to him it did not seem good enough.

His scholars and his friends all unite in the wish that he may still have a long, successful career in which he will contribute more to his beloved ophthalmology."

LONDON POSTGRADUATE FACILITIES

Dear Doctor Black:

It occurred to me that some of the readers of the Journal of Ophthalmology might be interested in the present situation of postgraduate work in London, and I am accordingly sending you a few hasty comments which might be of interest to such colleagues as may have a European trip in contemplation.

Moorfields, the Royal London Ophthalmic Hospital, (founded in 1804), on City Road, E. C. I., is now, as in the past, the particular London mecca for eye men. The present staff, with their clinic and operative days, which commence at 9 a. m., is as follows:

SURGEONS.

E. Treacher Collins, Esq., 17, Queen Anne Street, W. 1, (Mond., Thurs.)

J. H. Fisher, Esq., 83, Wimpole Street, W. 1. (Tues., Frid.)

Sir William Lister, K. C. M. G., 24, Devonshire Place, W. 1. (Tues., Frid.)

J. Herbert Parsons, Esq., C. B. E., 54, Queen Anne Street, W. 1. (Wed., Sat.)

Malcolm L. Hepburn, Esq., 111, Harley Street, W. 1. (Mond., Thurs.)

A. C. Hudson, Esq., 50, Queen Anne Street, W. 1. (Mond., Thurs.)

R. Foster Moore, Esq., O. B. E., 91, Harley Street, W. 1. (Wed., Sat.)

R. Affleck Greeves, Esq., 23 Wimpole Street, W. 1. (Wed., Sat.)

ASSISTANT SURGEONS.

F. A. Juler, Esq., 14. Portland Place, W. 1. (Wed., Sat.)

C. B. Goulden, Esq., 42, Welbeck Street, W. 1. (Tues., Frid.)

B. T. Lang, Esq., 22, Cavendish Square, W. 1. (Tues., Frid.)

M. H. Whiting, Esq., O. B. E., 9, Welbeck Street, W. 1. (Mond., Thurs.)

The Secretary-Superintendent is Mr. Robt. J. Bland, who will be glad to answer enquiries concerning the work. In the operating room, "George," who has for so long a time presided over the instruments, still holds forth as of yore. Moorfields has an in patient or bed capacity of one hundred and has ambulant or out patient clinics of over four hundred patients daily. At the date of this writing, there are about a dozen or more English, about a dozen East-Indian, a half dozen American and a few other postgraduate students. As in the past, the attending surgeons are uniformly gracious in their attitude and teaching, and Americans may be assured of most courteous welcome and treatment.

For any who wish more detailed information concerning London clinics, it would be well to write to the "Fellowship of Medicine and Post-Graduate Medical Association," which was organized in 1918, under the presidency of the late Sir William Osler. This organization has its office in the building of the Royal Society of Medicine at Number 1 Wimpole Street, London, W. I. The executive secretary, Miss M. A. Willis, will be glad to give information to prospective students. Those who wish may receive the weekly bulletin of the Association, by sending the minimum membership fee of $2.50; or single copies may be had by forwarding twenty-five cents in stamps. This Fellowship Society exists for the purpose of promoting Overseas and British postgraduate work.

In some of the Bulletins is printed a complete list of London hospitals, with street locations, and nearest underground station or overhead bus or tram route. It may be of interest to print the list of eye clinics for the week of July 4th, as given in the bulletin. It read as follows:

MONDAY, JULY 4.

9.00	Royal London Ophthalmic	Mr. Treacher Collins, Mr. Hepburn, Mr. Hudson, Mr. Whiting (O. P.)
1.30	Central London Ophthalmic	Mr. J. F. Cunningham, Mr. M. W. B. Oliver
1.30	Guy's	Mr. Ormond (O. P.)
2.00	King's College H	Mr. L. V. Cargill (O. P.)
2.00	Middlesex	Sir Arnold Lawson (I. P. and Opns.)
2.00	Royal Westminster	Mr. Grimsdale, Mr. Brewerton
2.30	Great Northern Central	Mr. McMullen

TUESDAY, JULY 5.

9.00	Royal Free	Mr. Hepburn
9.00	Royal London Ophthalmic	Mr. B. T. Lang (O. P.)
9.00	Middlesex	Sir Arnold Lawson, Mr. Affleck Greeves (O. P.)
9.45	Prince of Wales's	Lt.-Col. R. H. Elliot, Mr. Norman Fleming (Opns.)
1.30	Central London Ophthalmic	Mr. M. S. Mayou, Mr. H. P. Gibb

2.00 Guy's .....Mr. Ormond (Wards)
2.00 Royal Westminster.....Mr. Roll, Mr. McMullen; 4.30, Sir James Galloway, Lect., "Medical Ophthalmology"
2.00 St. Thomas's.....Mr. Hudson
3.00 Royal Eye.....Mr. L. V. Cargill (O. P. and Opns.)

WEDNESDAY, JULY 6.

9.00 London .....Mr. H. Rowe Jeremy (O. P.)
9.00 Royal London Ophthalmic.....Mr. Foster Moore, Mr. Affleck Greeves (O. P.)
9.30 Hampstead, Gen'l. H.....Mr. Letchworth (O. P.)
10.30 London .....Mr. Roxburgh (Lect. Dem.); *1.00* (I. P.)
1.30 Central London Ophthalmic.....Mr. A. H. Levy, Mr. H. Neame
2.00 Royal Westminster.....Mr. Cruise, Mr. Viner, Mr. Hine
2.00 St. Thomas's.....Mr. Hudson
3.00 Royal Eye.....Mr. A. D. Griffith, Mr. Latchworth

THURSDAY, JULY 7.

9.00 Royal London Ophthalmic.....Mr. Treacher Collins, Mr. Hepburn, Mr. Hudson, Mr. Whiting (O. P.)
10.30 London .....Mr. Roxburgh (Opns.)
1.30 Central London Ophthalmic.....Mr. J. F. Cunningham, Mr. M. W. B. Oliver
1.30 Guy's .....Mr. Ormond (O. P.)
2.00 Middlesex .....Sir Arnold Lawson (I. P. and Opns.)
2.00 King's College H.....Mr. L. V. Cargill (Opns. and Wards)
2.00 Prince of Wales's.....Mr. Norman Fleming (O. P.)
2.00 Royal Westminster.....Mr. Grimsdale, Mr. Brewerton
2.30 Great Northern Central.....Mr. W. H. McMullen

FRIDAY, JULY 8.

9.00 Middlesex .....Sir Arnold Lawson, Mr. Affleck Greeves (O. P.)
9.00 Royal London Ophthalmic.....Mr. B. T. Lang (O. P.)
1.30 Central London Ophthalmic.....Mr. M. S. Mayou, Mr. H. P. Gibbs
2.00 Royal Westminster.....Mr. Roll, Mr. McMullen
2.00 St. Thomas's.....Mr. Hudson
3.00 Royal Eye.....Mr. E. A. Dorrell

SATURDAY, JULY 9.

9.00 Royal London Ophthalmic.....Mr. Foster Moore, Mr. Affleck Greeves (O. P.)
9.30 London .....Mr. H. Rowe Jeremy; *10.30,* Mr. Roxburgh (O. P.)
1.30 Central London Ophthalmic.....Mr. A. H. Levy, Mr. H. Neame
2.00 Royal Westminister.....Mr. Viner, Mr. Hine
3.00 Royal Eye.....Mr. A. D. Griffith, Mr. Letchworth

From the above, it is seen that London offers very considerable facilities, in spite of the fact that the hospitals are at times, somewhat inconveniently arranged as regards nearness to one another. But the underground or tube service is excellent and that aids greatly. Living conditions and prices are about those of America for similar standards of living. The executive secretary of the Fellowship will give lists of hotels, etc., if requested.

The "American University Union in Europe" at 50 Russel Square, W. C. I., London, will also be glad to give information. Likewise "The English Speaking Union" at No. 1, Charing Cross, London.

If the above can be of service to one or more of our colleagues who may have their first trip to England in contemplation, the time taken to pen it, will be construed as having been well spent.

With best wishes, cordially,

GEO. H. KRESS.

Los Angeles, Calif.